

AMIGA SHOPPER

The top-selling serious Amiga magazine

BE A VISIONARY

We show you the best way to break into Amiga games.....Programming: page 22

MAKE A MOVIE

All you need to digitise and process pictures for your videos.....Video: page 73

CHEAT THE BEAT!

How to master your MIDI sequencing the easy way - by cheating!.....MIDI: page 76

DESIGN A DEMO

The secrets of sprite animation and scrolling routines exposed..AMOS: page 84

GET ON-LINE!

Find out how to set up your own bulletin board with shareware.....Comms: page 93

CUT THAT COST!

All the latest low-cost and no-cost software PLUS DIY Diskzines.....PD: page 128

WANTED!

All your problems
We just love 'em!

Nothing's too tough for

AMIGA ANSWERS

Beginner or expert -
we've got the solutions

ISSUE 17 • SEPTEMBER 1992 • £1.50 • YOUR DEFINITIVE GUIDE



13 PAGES FOR
PERFECT PUBLISHING

HOW TO CHOOSE THE BEST
AMIGA PUBLISHING PACKAGE
Which one is worth the lay-out?

PLUS
Fonts

BACK TO BASICS

Take control of your
DTP designs with our
typography tutorial



HIGH-END DTP HARDWARE:

Find out why Epson's colour scanner and
Star's PostScript laser are the biz.

CODE IT!

7 PAGES OF EASY TO FOLLOW
PROGRAMMING EXAMPLES

Future
PUBLISHING
Your guarantee of value



POWER

COMPUTING

GVP Series 2 HD (A500)



Up to 8MB Fast RAM on board

52QMB 0MB £369	105QMB 0MB £479
52QMB 2MB £419	105QMB 2MB £529
52QMB 4MB £469	105QMB 4MB £579
52QMB 8MB £599	105QMB 8MB £719

GVP A530 Turbo HD (A500)

40MHz 68030EC accelerator
Optional 68882 maths co-processor
Up to 8MB 32-bit Fast RAM on board
68882 Upgrade kit £239

52MB 0MB £729	105MB 0MB £869	240MB 0MB £1069
---------------	----------------	-----------------

GVP Series 2 HD

Up to 8MB Simm RAM on board
Supports external SCSI devices
For A1500/A2000
Bare £199

52QMB 0MB £279	105QMB 0MB £479
52QMB 2MB £339	105QMB 2MB £539
52QMB 4MB £399	105QMB 4MB £599
52QMB 8MB £469	105QMB 8MB £749

GVP G-Force

68030 Accelerator board
68882 Maths co-processor

25MHz 1MB RAM	£579
40MHz 4MB RAM	£949
50MHz 4MB RAM	£1349
Hard drive mount kit	£35

Chips

256K x 4DRAM £4.50	4MB x 8Simm £150	8372 Fatter Agnus £39
1MB x 1DRAM £3.95	1MB x 8Simm £30	1 x 4 Zip £19.95
A3000 Static column RAM	£22	
Simm 32 x 1MB-60	£65	(available for GVP A500)
Simm 32 x 4MB-60	£234	(available for GVP A530)
2.04 Kickstart (clap only)	£39.95	
2.04 Kickstart ROM chip, workbench software, install disk 2.04, font disk & extras	£99.95	
With ROM share	£115	

Magneto Optical Hard Disk



New style case with built-in power supply
High power cooling fan
SCSI ID switch for instant ID switch
25-way & 50-way SCSI ports (one may used as thru port)
Compatible with all major SCSI controllers
Up to 128MB on each removable cartridge
Compatible in speed with many hard disks

128MB HD (internal fitting)	£999
128MB HD (external cased)	£1199
128MB 3 1/2" optical cartridge	£39.95 each
SCSI controller card for A1500/A2000	£199

Compatible with Amiga, PC, Mac. A SCSI controller is required on the Amiga and PC.

Avideo 24

24-bit graphics for the A500
768 x 580 quality resolution
16.8 million colour frame buffer
Small easy to fit circuit board
Overlay Amiga graphics & animations
Fully genlockable
Runs on a standard A500 (1MB of chip RAM)
Comes with 24-bit paint package
Allows picture in picture £599 (includes TV Paint)

Nexus Hard Card

Up to 8MB RAM on board
For A1500/2000
Bare £199

52QMB 0MB £279	105QMB 0MB £479
52QMB 2MB £339	105QMB 2MB £539
52QMB 4MB £399	105QMB 4MB £599
52QMB 8MB £469	105QMB 8MB £749

Progressive Peripherals

Progressive 040/3000

28MHz Motorola 68040
Directly accesses 32-bit memory on A3000 Over Four times the speed of a standard A3000
AmigaDOS 2.0 compatible
4MB £999

Progressive 040/2000

28MHz Motorola 68040
Built-in maths co-processor
Expandable up to 32MB of RAM
Software compatible with 68000 processors
4MB £1295

Progressive 040/500

For the Amiga 500
28MHz 68040 with processor
Up to 40 times the speed of the standard A500
4MB of high speed 32-bit RAM
68000 fallback mode
Easy to fit, no soldering
Upgrade to 33MHz and 8MB of high speed RAM
28MHz 4MB £849

Zeus 040/2000

For the Amiga 2000
Complete workstation on a single card
28MHz or 33MHz 68040 accelerator
Built-in floating point processor
64MB high speed 32-bit RAM expansion
Fast SCSI-2 DMA hard drive controller
28MHz 4MB £1899 33MHz 4MB £2189

Rembrandt

24-bit colour
16 million colours
8MB of high speed video RAM
Real time 24-bit image capture
Software supplied
A1500/A2000 £2699

Framegrabber v2.0

Amiga genlock
New software £399

Bare SCSI Hard Drive

52 Quantum £199	105 Quantum £299
-----------------	------------------

(suitable for GVP G-Force, GVP HC or Nexus HC)



Send your order to Power Computing Ltd, Unit 8 Railton Road, Woburn Road Industrial Estate, Kempston, Bedford MK42 7PN
Ring your credit card order through on **0234 843388 (10 lines)** or Fax **0234 840234** Technical helpline **0234 841882**

All prices include VAT, delivery and are subject to change. Specifications are subject to change without notice. Next day delivery £3.50 (U.K. mainland only), all trademarks acknowledged

AMIGA SHOPPER

AT A GLANCE GUIDE

To help you find what you want quickly and easily, this is a cross-referenced list of all the products and subjects covered in this month's *Amiga Shopper*. The subjects covered in *Amiga Answers* are detailed on page 29; the many PD programs covered on page 128 are outlined there. The page numbers given are for the first page of the article in which the product is mentioned.

A600	10
Amiga Answers	31
AmigaDOS	121
AMOS	84
Artificial Intelligence	109
Bulletin boards	93
Buying advice	144
Comms	93
Competition	146
Desktop publishing	16,25,62
DigiTiger	69
DTP	16,25,62
Education	60
Epson GT 6000	25
For sale	125
Graphics	69
Letters	13
Listings	126
Magnetic Pages	128
Mail Order	111
Micro French	78
MIDI	76
Mini Office	117
Neural networks	109
News	7
PageStream	16
Product Locator	140
Professional Page	16
Programming	80,126
Public domain	128
Reverser	69
Roland GS	125
Saxon Publisher	16
Shareware	128
Star LaserPrinter II	25
Subscriptions	102
Talking Shop	13
Texture mappers	69
Typography	62
User Groups	88
Video	69
Visionary	22
VLab	69

Are there any products or subjects you'd like us to take a look at? Well, just drop a line to:

**Amiga Shopper,
30, Monmouth Street,
Bath BA1 2BW.**

WELCOME

It must be a great time to be fly on the wall in the offices of Commodore UK. A new Managing Director, Kelly Sumner, has only just recently been promoted, the A600 is hitting the street in force, the A570 CD-ROM drive is just about to ship, CDTV is shaping up to take on Philips' rival CD-I system, and there are two new Amigas in the pipeline. Which all add up to one thing: how can I get to plant a surveillance bug in there?

One way is simply to phone up the new boss and tape everything he says – which is exactly what Cliff Ramshaw did the other day. The results are printed on pages 10 to 12 and very interesting reading they make to. Besides confirming that the replacement for the A2000 is only four months off and suggesting that, yes, a new Amiga chipset could well be on its way, he went so far as to say he knew that a number of developers were already working on a memory card adaptor for the A500. Which is great news.

But while Kelly is convinced the prices of memory cards will drop to affordable levels, I'm not so sure. You're currently looking at paying

around £70 for one of these little beauties and who's going to develop software with that as a unit overhead. OK, say mass economies bring the price down by half in a year or so – it's still a helluva lot of dosh.

Compare it to the unit price of mastering a CD-ROM – around 70p – and you'll see what I mean.

So I put my money on the memory card slot being used as a port for new hard disks, RAM expansions, FAX/modems and the like.

Anyway, these are indeed exciting times for the Amiga range and I'm sure '92 will go down as a more significant year than '85 – which is when it all began. Enjoy the ish.

Andy Stoner

Editor

PUBLIC DOMAIN WORLD

MAGNETIC PAGES

There are thousands of Amiga programs which are available for little more than the price of a disk. And many more which allow you to try the software free before you buy. Each month in *Public Domain World* we examine the best of these programs and explain how to get hold of them.

This month we focus on a new PD spell-checker, a touch typing tutor and an authoring package for designing your own diskzines.

Public Domain World or

the low-cost low-down

as we call it this month, starts on page 128

AMIGA ANSWERS

**18 PAGES DEVOTED EXCLUSIVELY TO
ANSWERING YOUR QUESTIONS**

Every month in *Amiga Answers* our panel of experts answer more genuine reader questions than any other Amiga magazine. And for beginners our easy Expert Tips will help you get to grips with your Amiga, and understand the other features in this month's issue.

We answer questions every month on
Workbench • The CLI • Comms • Programming •
DTP • Video • Business software and more.

THE ANSWERS START ON PAGE 31

FOR A FULL LIST OF CONTENTS, TURN THE PAGE

Your guarantee of value

This magazine comes from Future Publishing, a company founded just seven years ago, but which now sells more computer magazines than any other publisher in Britain. We offer:

Better advice. Our titles are packed with tips, suggestions and explanatory features, written by the best in the business.

Stronger reviews. We have a cast-iron policy of editorial independence, and our reviews give clear buying recommendations.

Clearer design. You need solid information, and you need it fast. So our designers highlight key elements in the articles by using charts,

diagrams, summary boxes, annotated photographs and so on.

Greater relevance. At Future, editors operate under two golden rules:

- Understand your readers' needs.
- Satisfy them.

More reader interaction. We draw strongly on readers' contributions, resulting in the liveliest letters pages and the best reader tips. Buying one of our magazines is like joining a nationwide user group.

Better value for money. More pages, better quality: magazines you can trust.

future
PUBLISHING

The home of Britain's finest computer magazines:

Amiga Shopper • Amiga Format
• Amiga Power • Commodore Format
• PCW Plus • PC Plus
ST Format • Your Sinclair • Sega Power
Amstrad Action • PC Answers • PC Format
Mountain Biking UK • Needlecraft • Classic CD
• Cycling Plus • Photo Plus • Total!
and millions of other top-sellers in the pipeline

AMIGA CDTV. £200 OFF IF YOU PAY WITH PLASTIC.



The plastic in question being your trusty Amiga 500, of course. Because if you take it along to your local stockist and trade it in, we'll exchange it for a new generation Amiga CDTV multi media computer pack for only £199.99* that's £200 less than the normal retail price. And remember, that includes an Amiga CDTV player with keyboard, mouse, floppy disc drive and a 12 month warranty - the whole shooting match. This fantastic offer to our Amiga customers closes at the end of September. So hurry, as they say, while stocks last. And don't forget the plastic.



**AMIGA
CDTV**

*AMIGA 500 MUST BE TRADED IN WITH STOCKIST. OFFER VALID UNTIL 30/09/90. OFFER VALID IN THE UK ONLY. AMIGA CDTV MULTI MEDIA COMPUTER PACK RETAIL PRICE £399.99. OFFER PRICE £199.99. OFFER VALID UNTIL 30/09/90. OFFER VALID IN THE UK ONLY. AMIGA CDTV MULTI MEDIA COMPUTER PACK RETAIL PRICE £399.99. OFFER PRICE £199.99. OFFER VALID UNTIL 30/09/90. OFFER VALID IN THE UK ONLY.

INSIDE THIS ISSUE

AMIGA SHOPPER

Issue 17 September 1992

Editor: Andy Storer

Deputy Editor: Cliff Ramshaw

Layout Sub-Editor: Diana Taylor

Production Editor: Allison Harper

Consultant Editors: Jeff Walker,
Mark Smiddy

Contributors: Jason Holborn, Paul Overaa, Gary Whiteley, Phil Harris, Ian Wrigley, Philip Gladwin, Jolyon Ralph, Toby Simpson, Wilf Rees

Guest Composer: Claude Debussy

Ad Manager: Margaret Clarke

Senior Ad Sales Executive:

David Eckett

Production: Richard Gingell

Production Technicians:

Simon Windsor, Chris Stocker,

Jerome Clough

Assistant Publisher: Stuart Anderton

Circulation Director: Sue Hartley

Promotions Manager:

Michele Harris

Group Publishing Director:

Greg Ingham

ABC audited circulation:

July-December 1991:

45,209 copies/month

Printed by Thamesmouth Printing

News Trade Distribution -

UK: Future Publishing 0225 442244

Worldwide: MMC Ltd 0483 211678

This magazine is copyright © 1992

Future Publishing Ltd. No part of this

magazine may be reproduced without

written permission. We welcome

contributions for publication but regret

that we cannot return any submissions.

Any correspondence will be considered

for publication unless specifically stated

otherwise.

Editorial

30 Monmouth Street, Bath BA1 2BW

Tel: 0225 442244 : Fax: 0225 446019

E-mail: amshopper@cix.compulink

Advertising

Rayner House, 23 Higher Hillgate,

Stockport SK1 3ER

Tel: 061-474 7333; Fax: 061-476 3002

Subscriptions

The Old Barn, Somerton TA11 7PY

Tel: 0458 74011

So how about winning another year's free subscription then chaps? - This month all we want you to do is send us the names of the male glove-puppet chummies of the furry rodent funster referred to somewhere in these pages. You got 'em? Then just send 'em to: 'Sweep was the coolest dude ever and should've ditched Sooty years ago', Amiga Shopper, 30, Monmouth St, Bath, BA1 2BW. First out the bag wins 12 free issues. Oh, and last ish's winner was Phillip Elworthy - well done Phil - yep it was Tony Curtis!

News

7

Citizen launch a range of low-cost printers, a new 386 PC emulator is announced and the Amiga sci-fi movie is here!

Talking Shop 10

'A new A2000 is four months away'
- Commodore's new boss lays it on the line
PLUS: 'It's an excellent move'
- A600 owners speak out on the demise of the A500 range.

Visionary Adventures

16

Ever wanted to write the next great Amiga adventure game? - well, now's your chance with *Visionary*...

DTP SPECIAL

- What should you look out for when choosing between the new versions of Professional Page, PageStream and Saxon Publisher?page 18
- How can you benefit from buying a 24-bit colour scanner and PostScript laser printer?.....page 25
- PLUS: Tap into typography with our tutorial...page 62

Education

60

How to take complete control with your Amiga **PLUS:** We show you the easiest and cheapest way to learn French

Amiga Video

69

Fancy a low-cost frame grabber or a top-notch digitiser? Or could you do with a texture mapper - it's all here!

MIDI Music

76

How to cheat at sequencing to produce better results

PLUS: Just how revolutionary is Roland's new standard?

DIY Programming

80

What recursion means and how it can help you

AMOS Action

84

All you need to know about animating sprites and coding your own software scrolling routines

User Groups

88

How to get in touch with your fellow Amiganauts...

The World of Comms

93

Where to find a shareware solution to set up your own Amiga bulletin board the easy way

Artificial Intelligence

109

The final part in our neural network series looks at just how well such nets work and how they might be improved

AMIGA ANSWERS 37

18 fact-packed pages
crammed with every query you've sent in over the last month. Yes, a problem shared is a problem solved and here our unrivalled panel of experts sort out your niggles from your nightmares...

Down to Business

117

Mark Smiddy previews the long-awaited *Mini Office* - could it be the desktop business solution you're looking for?

Expert Tips

120

Ten essential tips to becoming a top arcade game coder

AmigaDos

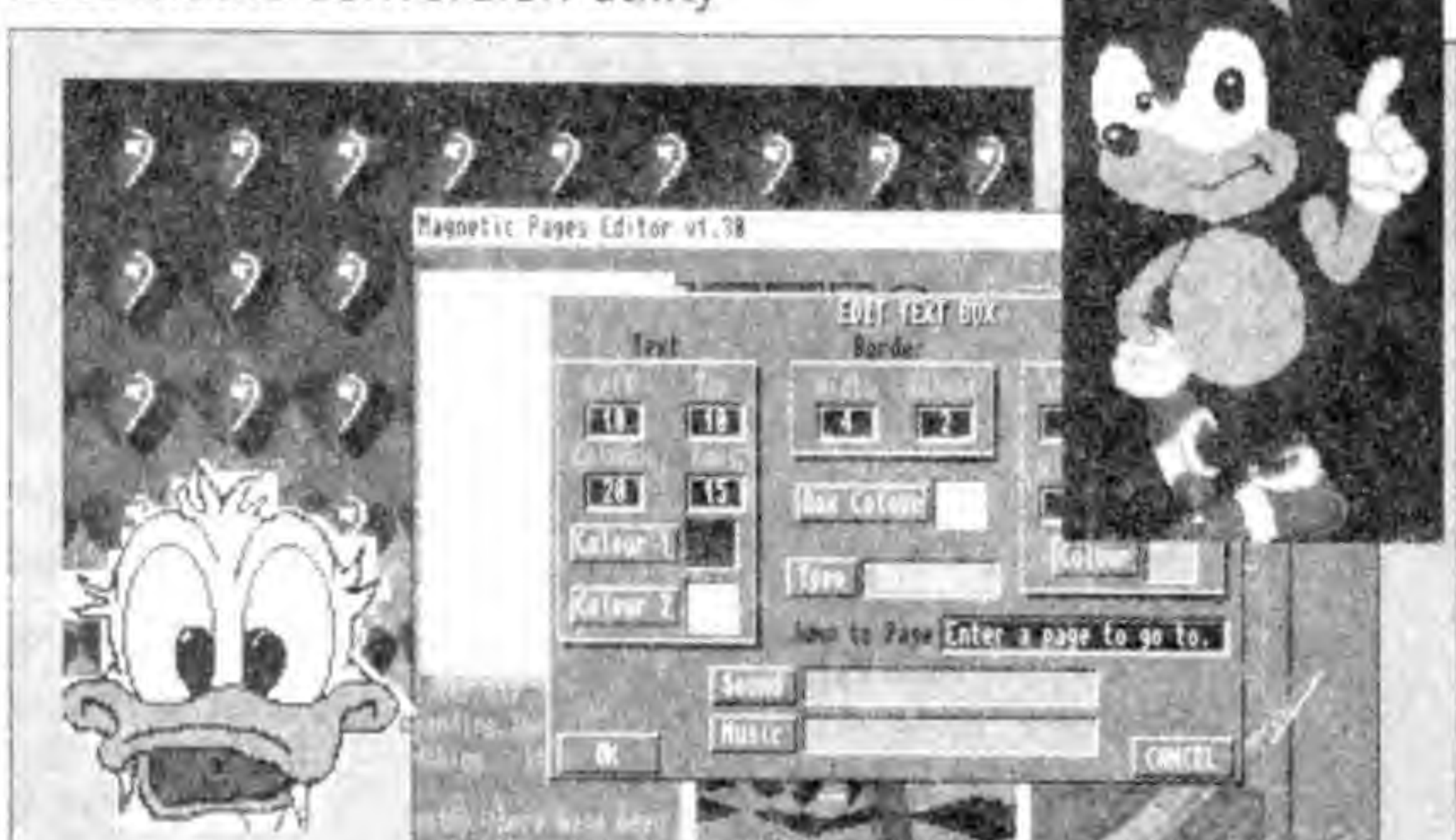
121

Why not save on money and produce your own digital calendar - it's easier than you think!

Listings

126

Send in your programs and win £20! - this month it's a neat Metric conversion utility



Public Domain World

128

All the latest releases in the PD and shareware scene

PLUS: If you want to produce your own diskzine, could *Magnetic Pages* be what you're looking for?

Product Locator

140

Where to turn if you want the most complete ratings guide to Amiga software on the market

Win £650 of Amiga books! 146

Yep, just answer three easy questions and with any luck you'll win one of our five sets of *Mastering Amiga* books!

WeServe of Hampshire Established 7 years

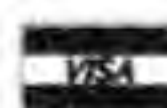
NEW Amiga Workstation /Expansion System Monitor stand with shelf for drives etc. Strong metal construction made from 14SWG steel epoxy coated Amiga colour. Special price £27.50	Midi Interface 4 channel Midi Interface for Amiga £29 Dr. T's Midi Music Software (not suitable for A500+) £9.95	Hard Disks Supra 500XP 52M for A500 £299 Commodore A590 20M Hard Disk for A500 £249	Floppy Drives Cumana CAX354 The most reliable drive you can buy 1M external £49 While stocks last
New Price Citizen 224 24pin Colour* Enhanced 24pin printer, *optional colour with easy to use control panel 2 year warranty. Price with cable & paper Mono £209 Colour £219 Amiga printer driver £5.00	New Price HP Deskjet Colour 300dpi colour inkjet printer. Colour laser quality at 1/10 of the cost. 3 year warranty. Price with cable & paper £519	GVP Series 2 for A500 52Mb Hard Disc £345 120Mb Hard Disc £449 52Mb A530 Combo £699 120Mb A530 Combo £849 for A1500 52Mb Hard Disc £279 120Mb Hard Disc £419 GVP ram £25 per 1Mb	Commodore A1011 1M external £49 While stocks last
All Citizen printers have 2 year warranty Swift 24E Enhanced 24pin. Colour printer with cable & paper Mono £259 Colour £269	Deskjet 500 HP 300dpi Inkjet printer. Laser quality at dot matrix price. 3 year warranty. With cable & paper £359	A2286 Bridgeboard CBM 286 Bridgeboard for A1500 £319	Roctec RocLite RF382C 1M external £56
Citizen Swift 9 with cable & paper Mono £169 Colour £179	Printer Drivers Citizen Colour 24pin 5.00 Canon BJ-10e 4.95 Deskjet 500 Colour 9.95	Commodore 1085SDI 14" Colour Monitor with cable dot pitch 0.51mm Standard Res. £199	Ram Upgrades A500 1Mram + clock £21.90 A500 1Mram no clock £17.90 A500+ 1Mram + clock £39.90 A600 1Mram + clock £49.90
Citizen 120D + with cable & paper £119	Printer Dust Covers most types in stock from £4.70 inc VAT	Commodore 1084SD 14" Colour Monitor with cable dot pitch 0.42mm £209 While stocks last	Amiga 1500 with full software pack £499
Panasonic KXP1123 Probably the best 24pin mono printer available. With cable & paper £179	Canon BJ-10ex 360dpi Inkjet printer with cable & paper £215	Philips CM8833 MK2 Colour monitor with cable £199 Colour monitor with no cable £189 UK. 240V mains + F19 game	Amiga 600HD 20Mb internal Hard disk & software £439
Panasonic/Epson KXP1170 9pin 134 KXP1124i 24pin 227 KXP2180 9pin Colour 189 KXP2123 24pin Colour... 269 Epson LQ570 24pin 265 Epson EPL-4100 Laser.. 680 Epson EPL-8100 Laser.. 1115 Prices include VAT cable & paper	Star SJ-48 360dpi Inkjet printer with cable & paper £209	Accessories Joystick/Mouse twin extension 4.70 3M Joystick/Mouse lead 3.75 A500 Printer cable 7.95 Modulator/Disk Extension 10.95 23way Plug or socket 2.95 A500 Dust Cover 4.70 Mouse Mat (thick soft type) .. 4.95 Mouse House 2.95 1M internal 3.5" drive 49.00 A500 replacement PSU 39.00 A590 replacement PSU 49.00 Rocgen Plus - Genlock + ... 129.00	Amiga 600 Standard A600 with full software £339
Naksha Mouse for Atari ST & Amiga with house & mat £21.50	Star LC200 with cable & paper New Price £179	Star LC20 Mono 9pin 129 LC200 Colour 9pin 179 LC2420 Mono 24pin 189 LC24200 Mono 24pin 209 LC24200 Colour 24pin .. 259 Prices include VAT cable & paper	SONY DISKETTES SONY branded (lifetime warranty) (100% certified error free) 10x 3.5" DS/DD 135tpi 7.50 50x 3.5" DS/DD 135tpi 32.30 100x3.5" DS/DD 135tpi 59.93 250x3.5" DS/DD 135tpi 141.00 1kx 3.5" DS/DD 135tpi 540.50
Squik Mouse for Atari ST & Amiga £13.90	Kickstart Upgrades Commodore 2.04 full upgrade 79.00 Kickstart ROM only v2.04 41.50 Kickstart ROM only v1.3 29.00 Keyb'd operated shaver 24.95 VXL30 25MHz Accelerator ..239.00 Fatter Angus custom chip 37.50	Naksha Scanner 200 to 400dpi. 105mm width with express-IT software £99	DISKETTES SONY / DYSAN bulk (lifetime warranty) (100% certified error free) 10x 3.5" DS/DD 135tpi 5.95 50x 3.5" DS/DD 135tpi 21.86 100x3.5" DS/DD 135tpi 39.60 250x3.5" DS/DD 135tpi 94.88 1kx 3.5" DS/DD 135tpi 353.68 40 x 3.5" Disk box with lock 5.49 100 x 3.5" Disk box with lock .. 7.50 Carriage on 50+ disks £3.53

Phone for our 60 page catalogue
EDUCATIONAL AND GOVERNMENT ORDERS WELCOME
 All products have a 30 day money back & 12 month warranty.
 Prices are subject to variation without prior notification.
Established 7 years. 3 minutes from M27 Junction 11.
 Free parking. Open 9 to 5.30 Monday to Friday & 9 to 5 Saturday
 Postage 94p or £3.53 Securicor £6.46 (£5.50 + VAT)

WeServe



Larger items delivered by Securicor



Amiga/Shopper Dept.
 40-42 West Street
 Portchester Hants
 PO16 9UW
 Tel: 0705 325354

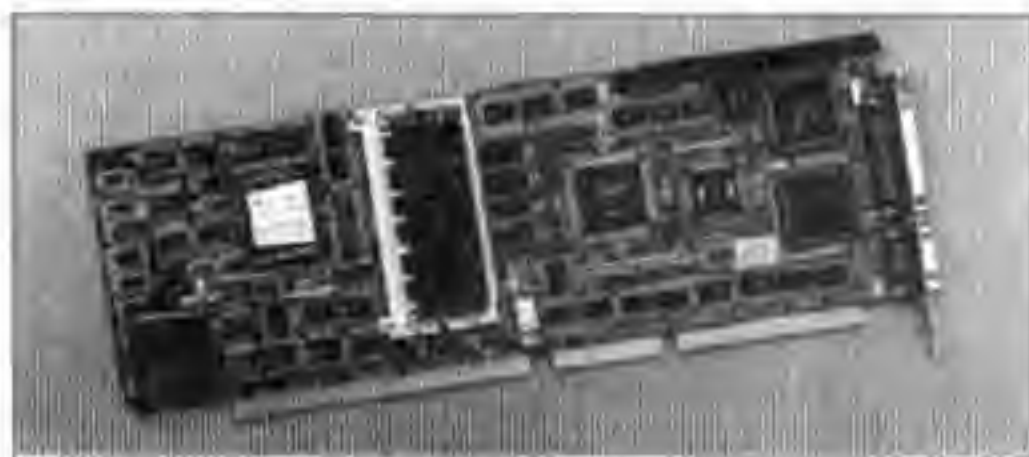
WeServe

Best for service

WeServe

Best for service

High powered PC emulation



The Golden Gate – 386 PC compatibility comes to the Amiga

A new PC emulator has been released for the Amiga.

The Golden Gate is a hardware-based emulator that provides a 25MHz 80836SX processor on a card. It plugs into an Amiga 1500/2000/3000/3000T and is claimed to multi-task.

Supplied with 512Kb, the card is expandable via SIMMs up to 16Mb, 4Mb of which can be used by the Amiga. An IDE hard disk controller is also included. The card also works with Amiga RAM expansions and standard Amiga hard drives.

The Amiga's floppy drives can be used by the card as 360Kb and 720Kb MS-DOS drives. An optional floppy disk controller will enable the card to access up to three high density or extra high density drives, with capacities of 1.2, 1.44 or 2.88Mb.

A VGA card in one of the Amiga's PC slots enables the user to take advantage of a full colour VGA display (with an appropriate monitor).

The Golden Gate comes with its own speaker, RTC and CMOS RAM. There is space on the board for a 80C387SX maths co-processor. It costs £499 from Silica Systems ☎ 081 309 1111. Vortex ☎ 01049 7131 597214.

A2000'S DAYS ARE NUMBERED

The new head of Commodore UK, Kelly Sumner, has announced that the Amiga 2000 is to be replaced in four months time.

The revelation came in an exclusive interview given to *Amiga Shopper* shortly after his appointment as managing director of Commodore UK on July 1.

The news comes at the same time as speculation increases over the exact specifications of the two new Amigas believed to be in the pipeline with the most substantial rumours to date emanating from an American beta-tester for Commodore US. **Full details begin on page 10.**

The A2000 is to go the same way as the A500. Now the Amiga community waits with bated breath to see what will replace it



Entertainment extravaganza to hit London

The biggest show yet is going to be at Earls Court this November.

The Future Entertainment Show, open from November 5 to 8, is expected to attract 100,000 visitors. All of the greatest names in hardware and software are expected to be there, in even more force than last year's World Of Commodore Show.

As well as holding hordes of goodies for Amiga users, Earl's Court will play host to Nintendo, Sega, ST and PC fans. Computer games will play a large part in the show, with a National Computer Games Championship having its final held there. The stakes are £20,000 in prize money, and the final will be televised as part of Yorkshire TV's forthcoming computer games programme.

Rest assured that the *Amiga Shopper* team will be there to stop things getting too frivolous. We'll be offering tips and advice and our *Amiga Answers* panel will be on hand to tackle 'live' questions.



The Future Entertainment Show promises to be the biggest one yet, with 100,000 visitors expected and stands from the best names in hardware and software

AMIGAS ON COURSE

The London College of Printing & Distributive Trades is offering a number of design and image processing courses centred around the Amiga.

Courses range from two to four days, costing from £165 to £295. They range from the latter half of August to the middle of September. They will be given by industry professionals and college lecturers. Delegates will have access to their own Amiga A3000s with GVP IV24 graphics cards.

The course titles are: Introduction to Interactive Multimedia Design, Practical Techniques of Interactive Multimedia Design, Digital Darkroom (Digital Image Processing), The Art of Presentation (Electronic Presentation Graphics), and Presentation Graphics for the Designer.

Further details are available from: Short Courses Secretary, Professional Development Unit, The London Institute, Elephant & Castle, London SE1 6SB ☎ 071 793 0077.

SUPERBASE UPDATES FROM OXXI

American based software house Oxxi has announced several extensions to the Superbase range of databases.

The rights to the programs were acquired by the company from Precision some time ago (see *Amiga Shopper* issue 10). Fears that it was the end of the line for Superbase have been alleviated by Oxxi's demonstration of commitment to the product.

The company has just released *Superbase Personal 4*. The new version will enable users to query not just one file but several. Queries for file updating and mail label programs can be edited, loaded and saved.

A new kind of field, the logical field, has been added, which enables the user to store simple true/false values as part of a database.

Superbase Personal 4's files are

compatible with all versions of *Superbase*.

Most development has taken place on *Superbase Professional*, renamed to become *SBase Professional*. The first addition is a Local Area Network extension, *SBase Professional 4 LAN*. The program, only available to registered users of *SBase Professional*, will enable users linked to a network to share data files with other *Superbase* users on the network, on Amigas, PCs or Macs.

The software works with Oxxi's Amiga Client Software, which enables Amigas to be linked to a PC Novell Netware network. Once so linked, users can share data files and maintain record locking.

Also new is the Developer's Extension for *SBase Professional*



Superbase Professional – still alive and kicking, and now talking to itself across networks too

which uses a run-time module to enable programmers to create stand-alone database applications which will run independently of *SBase*.

Developers must own a registered version of *SBase Professional* before they can buy the Extension. Any applications created can be registered with Oxxi and advertised in the company's guide to *Superbase* applications.

Version 1.2 of *SBase Professional*

4 is ready for sale. It corrects the bugs inherent in 1.01 and offers these additions: correct printing of page length, an ask command, improved display and foreign character output and ARexx support. It sells for £233.83. Oxxi's products are distributed in the UK by HB Marketing ☎ 0753 686000. UK prices for most of the above have yet to be finalised. Oxxi ☎ 0101 310 427 1227.

NEW PRINTERS FROM CITIZEN

Citizen has launched the Swift 2 range of dot matrix printers.

The range comprises of three models: the Swift 200, the Swift 240 and the Swift 240C. All of them operate at exceedingly low noise levels, with a special quiet mode being included to reduce noise to 44.5dB.

They make use of Citizen's Command Vue Control Panel system to enable users to control the printers with the minimum of fuss. This goal is further achieved by the printers' Auto-Set facility, which can detect the emulation in use by a computer and alter the printer's settings to accommodate it.

An additional facility enables pages to be printed at a quarter size so that four pages can be printed on

one ordinary A4 sheet. It is expected to be useful for users wishing to create pages for inclusion in their personal organisers.

The Swift 200 has six letter quality fonts and one draft font. Colour is available as an option. It emulates the IBM Proprinter X24e, Epson LQ 500/850 and NEC P20, as well as Citizen's propriety protocol.

The Swift 240 has nine letter quality fonts; two of these are scalable, ranging from 8 to 40 points in size.

Print speed is a claimed 240 characters per second. The printer has a buffer of 8K, expandable to either 40K or 136K. Emulations supported are Epson LQ570, IBM Proprinter, NEC P20 and Citizen's own. A colour option can be added,



Citizen hopes to take the dot matrix market by storm with the release of its Swift 2 range of 24-pin printers

or it can be bought with colour already installed as the Swift 240C.

Prices are to be finalised, but the 200 should come in at around £250, Citizen ☎ 0753 584111.

DIARY DATES

September 5: All Formats Computer Fair. National Motorcycle Museum, Solihull.
☎ 0225 868100.

September 12: All Formats Computer Fair. Sandown Racecourse, Esher.
☎ 0225 868100.

September 19: All Formats Computer Fair. Donington Racecourse, East Midlands.
☎ 0225 868100.

Correction

An error crept into the advertisement for Merlin Express Limited in July. The price for a Philips CM8833/II colour monitor was stated as £129.99, when it should have been £219. Apologies for any confusion.

Space Wars on the Amiga

Two enterprising Europeans have combined their talents to produce an eight minute animated film using Amiga computers.

Norwegian Bjorn A Lynne and German Tobias J Richter, already famous for his numerous animations in the public domain, have spent two and a half months creating their masterpiece, called *Space Wars*, which uses spaceships as seen in *Star Trek* and *Star Wars*. Richter created the animations while Lynne storyboarded the movie and wrote the music.

Five Amigas with 68030 processors were used in the creation of the video, along with DCTV and 24-bit graphics. All in all, the data came to 150Mb, held on removable Syquest hard disks. Additional equipment came in the form of *Reflections*, *Videoscape*, *DPaint*, *Scala*, *Music X* and *AudioMaster III*. An Ensoniq SQ-R Plus, a Korg DW8000 and a Roland Juno 2 were the synthesisers hooked up to the Amiga via MIDI to create the music.

Copies of the video in VHS format with stereo sound can be obtained for £12 from Bjorn A Lynne, Schleppegrellsgt 10, 0556 Oslo 5, Norway.



'This is Red Five - I'm going in!' cried the brave space pilot as he wrenched at his joystick and sent his craft hurtling into the trench

ROM sharer all ready

Trilogic has released a ROM sharer for the entire Amiga range.

The sharer plugs directly into the ROM socket, without any need for a Gary adaptor, making it suitable for all Amigas including the new A600. The share will take any two Amiga ROMs (not supplied), and will enable the user to switch between them simply by use of the Control/Amiga/Amiga key combination on boot-up. An audible bleep confirms the switch over.

The Trilogic ROM sharer costs £27.99. For an additional £10, Trilogic will fit the unit without voiding your warranty. Trilogic ☎ 0274 691115.

GREEN PAPER FOR PRINTERS

Printer users can now consider the environment and make use of recycled paper for their listings and letters.

Olives Papers has released two brands of recycled computer paper. The first, Olives Laz-a-lyst, is made from paper industry and post-consumer (paper) waste. It is a high quality paper which apparently rivals

virgin paper alternatives. The second, Olives Concept, is made entirely from post-consumer waste.

Both types of paper are available in plain or with music rules, in standard sizes of 11x14.5" and 11x9.5".

Further info on the paper which cares for your environment from Olives Papers ☎ 061 705 1886.



OctaMED may be a very nice music program, but that doesn't mean you can use its code in your own programs without permission

Stern warning to breachers of copyright

Amiganuts United has sent a stern warning to the distributors of licensed programs concerning breach of copyright.

The bone of contention is OctaMED version 3. While its music routines and the included OctaMEDPlayer can be used within a public domain or shareware

program, they cannot be used in a licensed or copyrighted program without permission and a licence from Amiganuts.

It seems Amiganuts is quite prepared to take court action against guilty parties. It says in the letter sent to the distributors: "We should point out that if we find that any program being sold under a licensed/copyright deal which contains the source or OctaMEDPlayer routines from

OctaMED version 3 onwards, then we will contact our solicitors to facilitate any court action that may be deemed warranted against whoever is breaking the copyright laws of this country."

Amiganuts advised anyone wishing to make use of the said routines in their own licensed or commercial programs to contact the company at: Amiganuts United, 169 Dale Valley Road, Hollybrook, Southampton SO1 6QX.

Home Accounts 2

the best gets better...

When Home Accounts was launched four years ago we had just one goal—to create the best home finance program. Over 30,000 of you agreed with us and purchased Home Accounts, not only for use in the home, but also for business, clubs and charities.

It seemed like a good idea to let you tell us exactly what to put into Home Accounts2®

Which you did.

Some of you didn't like the restrictions on the number of income accounts, expenditure types, and transactions. So we removed them.

Some of you wanted more graphics, so we added pie charts, scatter and line graphs. We thought we'd better smarten up the bar graphs, so we added 3D effects, stacking and overlaying, and we made sure you can print them.

Many of you wanted to calculate mortgage rate changes, loan repayments, retirement planning and so on. So we added a pop-up calculator and interest calculator. There's also an option to take account of inflation.

Since nearly half of you use Home Accounts for small business bookkeeping, we added options for VAT and business style reports.

Then, our technical people added a little...

Investment accounts, net worth statement, password, cheque numbering, custom reports, flexible year period. And (to save you disturbing them on our support hotline) an on-line help system, should you need it.

They also added our acclaimed *Human Interface Protocol*™ which first appeared in *Wordworth*®. As you can see, it sets a new standard in speed, style and elegance for Workbench. (It also contains a screen saver, *Playtime* games and a few other goodies.)

Amiga Format said, "Digita have made great efforts to listen to their customer comments and the result is a package which will suit any household. Everything the home user needs has been included—and more".



Home Accounts2 is written by Digita®. Which means you'll be using a program designed for the way British finances work, and you'll know where to come for professional support.

The only way you can really appreciate Home Accounts2 is to use it. Phone 0395 270273 for more information or, write to Digita, FREEPOST, Exmouth EX8 2YZ.

Home Accounts2 costs £54.99, which includes VAT, postage and packing, and when purchased from Digita, comes with a 7 days money-back guarantee.

If you already own a home finance program, for a limited period only, you can trade-up for just £29.99 by returning your original disks to Digita with your order.

Amiga Computing concluded, "A completely functional, very useful and amazingly easy program to use. If you're a wary newcomer to accounts packages then cast off your doubts and splash out on Home Accounts2."

As it turned out, listening to Home Accounts users was a pretty good way to write software.

The best just got better.

Machine support:
Written specifically for the Amiga.
Fully supports WD1.5 and 2.00.
All medium and high resolution modes (mono and colour).



DIGITA®
INTERNATIONAL

software that's right™

Home Accounts2 is available to the trade through Columbus, Gerni, HB Marketing, JBD, Lazer, Leisnersoft, Precision and SDL.

Digita International Ltd. Black Horse House Exmouth EX8 1JL ENGLAND Tel 0395 270273 Fax 0395 268893

A member of the Digita group

Digita, the Digita logo, Home Accounts, the Home Accounts logo, and Wordworth are registered trademarks, and Digita, Human Interface Protocol and software that's right are trademarks of Digita Holdings Ltd. All other trademarks and their owners are acknowledged. Sold subject to standard conditions of sale T & C.

Talking Shop with the

How does it feel to be Managing Director of Commodore UK?

It feels good. It was an ambition. It's probably most people's ambition to reach the top of their company. It's taken me 13 years to achieve it and it feels good.

What, if any changes, will we be seeing in Commodore UK?

I'm not sure if you're going to see any great changes. If anything, Commodore is going to be a bit more focused on the Amiga line of product, because obviously that's our bread and butter.

Now that PCs have fallen so low in price, many people would consider buying a PC rather than a high end Amiga. What would you say to those people?

We've always got plans to bring in new products and new specifications of product. You haven't seen a great deal from us in real terms because obviously it takes a lot of time to design an Amiga chip set. But yes we have got plans to increase the power of the specification of the Amiga. I think that an Amiga still offers certain people much more than a PC would in certain areas.

If they really just want to do the boring stuff, then they're probably better off buying a Commodore PC, but if they want to do a little bit more and they want DOS compatibility then there's really only one choice, which is the A2000 or A3000. Most people, I think, feel that the Amiga is a far more friendly environment than, say, a 386SX20, even with Windows.

The Amiga is still a very competitive product – even with 386SXs prices down to £799 or £899 ex VAT – you have A1500s selling at £599 and the wealth of productivity and entertainment software is much more on an Amiga than a PC.

Atari is rumoured to be planning the Falcon, a 68030-based machine capable of displaying 32,000 colours and playing 10 channel CD-quality sound which it hopes to sell for £550. How can the Amiga hope

to compete with this?

First of all we've got to see it. With no disrespect to any of our competitors, I can tell you wonderful things about wonderful products, but until they come on the shelves it's not reality. I can talk about 16 million colours and this, that and the other, but what's the point because they're not on the shelf at the moment? I would say that, like Atari, we are in continual development of machines. Unlike Atari, we aren't willing to talk about the machines before they become reality, because things can happen, time can lapse in development. It doesn't always go as smoothly as you would like, especially if you design a machine



The top of the range 68030-based Amiga 3000 – it's good, but not that good. Perhaps a faster machine with better graphics is needed?

with a chip set which is meant to be as compatible as possible with the existing range – it takes quite a lot of time and effort. We just don't feel that we need to start talking about machines that are going to come down the line – we're not in the situation where our machines aren't selling effectively.

We'd rather say buy what we've got now; in a years time it may be



Kelly Sumner, obviously pleased at his recent promotion to Commodore UK's managing director. But what has he got in store for us?

entirely different. But let's not dangle the carrot in front of people because that year may change into 18 months. That's why we try to keep it quiet. I know everyone wants to write about new products and new this and that, but it's not fair on the end users to tell them about all these wonderful things that may never come about. I've seen loads of products in Commodore that have just never come to the market.

The A3000 has recently undergone a large price drop ('price position, price position,' jokes Sumner). We've heard rumours that the A600 is about to do the same, falling under £300.

What we did originally with the A3000 was stuff it full of lots of memory and put this, that and the other in there. What we've effectively done is pull a lot of that out and said 'if you really want to get into this type of machine you can have a lot lower entry price point.' Not everyone needs to have 6 or 8Mb of RAM, not everyone needs to have maybe *Scala* or whatever. Not everyone has got £3000 to buy an A3000, but they may have £1500 and they may want to build the product up over a period of time.

So what about the A600? Is there any truth to the price rumours?

'There's no

There are always rumours. I think our statement is exactly the same as on the A3000. We will sell the product at the price that we believe will make it competitive within the market place. Now, if it's £399 it's £399, if it's £499 it's £499, if it's £299 it's £299, whatever the price is. It's a tough economy out there, and we can't sit in our ivory towers and ignore the fact that we're competing for everybody's money.

We're not particularly competing against Sega or Nintendo or Atari or whoever, we're competing against the money that may be spent on a holiday or a TV or a video. We're competing for people's cash.

Obviously we've got to make our product an exciting proposition and if it's a question of putting more software with it or cutting the price, we will obviously look at that.

How many CDTV's have you sold?

It's about 15,000. The trade-in seems to have had a tremendous effect. You can buy a CDTV at £499 as a stand-alone item, or you can buy it for £599 with a keyboard, disk drive and mouse, or, if you're an A500 user – doesn't matter what kind of A500; it could be a 1.2 – you can trade your A500 in and get a CDTV for £399. So you save £200.

The great thing is, if you've had your Amiga for say four years, which quite a few thousand people have, that you're getting a disk drive with CDTV and so your software will be compatible, and you're obviously getting a new warranty on your product. You get additional things like MIDI in MIDI out, plus the CD-ROM drive. So it's quite a good deal.

Are you confident of CDTV's success now that Philips CD-I is on the streets with a much bigger marketing budget?

I think I'm confident of us winning the CD war against, say, Philips, because quite frankly the people who

'How far away is the replacement for the A2000?'

Main Man

In his first interview since taking over as the new MD of Commodore UK, Kelly Sumner talks to Cliff Ramshaw about the future of the Amiga range and why the A600 is its vanguard...

way we're going to allow our user base to suffer'

are buying the CD technology at the moment are computer literate people, which is our market-place; but I think it's going to take a huge amount of money to try to educate the masses on why they should spend so much more on buying this thing called CD-I or CDTV.

We've got to address our population, which Philips hasn't got. So certainly in the short term I don't think we have a particular problem. Who knows what's going to happen in two or three years time?

How many do you expect to sell between now and Christmas?

About 50,000.

Do you plan on releasing a CD-ROM drive for the A1500/A2000 range?

It's certainly been talked about. I think that it probably is a likelihood, but I don't think you'll see it much before Christmas.

When will the A570 be in the shops?

This month (July).

Regarding the A500 Plus, our reader response to its demise has been pretty negative.

I thought you did quite a good hatchet job.

Well, the reaction was pretty bad.

Yes, I was speaking to someone in the trade about it. What we can't tell people is what our overall game plan is. And they get very emotional about this product called the A500 that they've had and they've got very close to, and rightly so.

But the A600 is the first of the new machines that will be coming out. If you look at it, it's got surface mount technology, it takes PCMCIA cards and all that kind of business. And who says in maybe a year's time they're going to look at it and say 'well, Christ, actually Commodore did do the right thing.' It doesn't happen

overnight, you can't suddenly release a whole plethora of machines, and people can't really take advantage of the PCMCIA overnight.

But that machine, the A600, is a better deal than the A500. The manufacture and reliability is much much, much better. We've shipped something like 65,000 A600s to the trade since April. Out of all of the ones that have been sold, we haven't had one PCB failure. Not one. Now that is quite incredible.

The other thing is that with the advent of the PCMCIA slot it will make it a lot easier for people to expand. They've got this thing about the DMA bus which is all singing and dancing and wonderful, but quite frankly that's not true. At the present time there are more people who are writing for the PCMCIA slot than have ever written for the DMA bus. There's 70 people producing cards at the moment that run on the A600.

What we've done is, we've gone

"A PCMCIA card adaptor for the A500 is the wise way to go"

out and taken a standard architecture that will give people a better choice and make it easier for people to develop for that card. Now our theory is that, for instance, if you buy an A600 you don't have to go out and buy a traditional hard disk and have to open your machine and put it in and all that business, you go out and buy a 20Mb, 40Mb, 60Mb card. Or you go and buy flash RAM or whatever.

One of the reactions people had was: 'Oh, what about my peripherals etc'; but in the long term PCMCIA will

be a godsend because it will be so much cheaper.

Did you expect the bad reaction over the A500 Plus?

I think in real terms we knew there was going to be a

reaction. It's the A500 series rather than just the A500 Plus. You've got to think that we sold 1.25 million machines. It's been very close to either

end users or retailers for a very long time. And people don't like or accept change very easily. I can well remember when Ford brought out the Sierra. People hated it, but now no-one says anything about it - it's totally accepted. They took a radical step, which is what we've done.

It's the same with the Amiga; it will take a little time for people to accept. But for the end user, the machine has got to be better. Take on-site maintenance.

Would you like to take the opportunity to reassure the A500 owners that they're not in possession of a dinosaur?

No they're not, absolutely true, because the whole thing about the Amiga technology was that we would try and make the people's machine grow as we released new products. Now that obviously isn't always 100% available because things do change. But if you bought a 1.2 Amiga, you could have upgraded it to 1.3, and you could have upgraded it to 2.04. We'll still carry on bringing out peripherals such as printers, monitors, drives and RAM.

There's no way that we're going to allow our user base to suffer. But what we've done is taken advantage of new technology - surface mount and the card slot.

Do you know of any third party developers seeking to make a PCMCIA adaptor for the A500?

There are a number of people



The A600 may have disappointed many but, seen as the first of a new wave of Amigas, it becomes a more tantalising proposition

rumoured to be. I've heard three people talking about it. I actually think that it's the wise way to go, really and truthfully. To make that adaptor wouldn't be very expensive. Technology-wise it's quite inexpensive. If you're an A500 user and you haven't got a hard disk or whatever, it's a tremendous way to expand.

Do you know of any developers intending to produce serious software for the A600's slot?

There's a number of people looking at that at the moment. I think, quite frankly, that it's going to be a good six months before you see that, for a number of reasons: the cards are still a little bit expensive but obviously the price is reducing dramatically as more people get into the market. But there are quite a number of people, particularly in the States, who are talking about that at the moment.

How far away is a replacement for the A2000?

About four months.

Can you give us any details?

No. The range that we had last year, apart from the A3000 which we've re-positioned so far as pricing is concerned, is going to be quite different to the range we will see at the end of this year. We are trying to make sure that we have very competitive products. But I don't want to talk about what's going to be

- 'About 4 months...'

in there. What I would say is that if people are looking for a machine that is as inexpensive as the A1500, they may well be disappointed, because the new machine will have higher specifications and obviously that does carry a cost.

Is there any truth to the rumours of an 'AA' chip set?

Well, if you think about it, the first chip that we ever released was the 'single A', and then we had the ECS which is the 'A Plus' chip set, if you like, so I suppose a 'double A' wouldn't be out of the question.

All I would say again is that we realise that we have to keep ahead of the game. Whether it's a 'double A' whether it's an 'A Plus' or whatever, it wouldn't be out of the question to see Commodore releasing new chip sets, because that's our game. If we're to stay ahead of the competition, we have to do something.

Just by dropping a 68020 or 030 in there – that's great but that really just gives you speed; it doesn't increase the graphics power. It would

be silly to say that we're not thinking about other chip sets, but a chip set for an Amiga takes a very long time to develop if we're to remain compatible with what's already out



Faithful but ageing, the A2000 needs a revamp. Does the A800 detailed below fit the bill?

there. And I think that it would be wrong for Commodore to release a new chip set that hasn't got a high degree of compatibility, because

obviously people may want to buy the new chip set and already have a software base. I'm not going to say that everything will always run on a new chip set, but we're after high degrees of compatibility, which takes longer than just producing something from scratch.

There's been a pirate beta test version of Kickstart 3 knocking around on some bulletin boards. When will we see this as a legal product?

I don't know. We have just released 2.04 into all our machines; so I think it will be a little while. There were rumours for probably 18 months or two years about version 2 – I think as soon as we released 1.3, people were talking about 2. So, it would be quite sensible to think there was going to be some delay there.

Is there anything else you would like to tell our readers?

I would say to the readers that obviously if they've got an A500 I think that the A600 isn't necessarily the right way to go – maybe an

A3000 would be – because the A600 doesn't offer that much more to someone who's already got a 500.

Also they should think about the reasons why we implement new things such as the PCMCIA smart card – that in time will be one of the biggest bonuses for the Amiga because it will make us a standard within the industry; that means that they're going to be able to buy add-ons and accessories a great deal cheaper than they probably could do today. It won't happen overnight, but it will be there. It's all well and good saying the DMA bus was good, but we were the only people producing DMA product. That obviously made it expensive to start with. But with 70 people at the moment producing PCMCIA cards, that product's going to become very inexpensive in time. And it's neat – you've got removable hard disks there haven't you?

You haven't asked me about the Amiga 800.

Well, we've heard rumours of it.

I was just going to say. I don't know of a product called the Amiga 800.

HOT NEW AMIGAS

...or those two new machines Kelly Sumner wasn't able to comment on

Further details of two new Amigas from Commodore have emerged.

The information comes from a message posted on Usenet, the international electronic mail network, and is allegedly posted by a third party developer for Commodore US which is beta testing the products. Two new Amigas are detailed, the Amiga 4000 and the Amiga 'Classic', otherwise known as the A800.

The information seems plausible, but we cannot verify it because the machines are covered by Non-Disclosure Agreements. It is certain though that new Amigas are expected.

The A4000, a machine to be introduced above the A3000, is said to be based around Motorola's latest central processing unit, the 68040. Along with the other new machine, it boasts new graphics and sound chips, dubbed the 'AA' chip set, and version 2.1 of Kickstart, also currently in beta test.

Expandable to 64Mb of Fast RAM and 16Mb of Chip RAM (memory accessible by the graphics and sound chips), the A4000 comes with 16Mb Fast RAM, 4Mb Chip RAM and a 105Mb Quantum hard disk. Its floppy disk is a high density device (giving

twice the capacity of a normal floppy) but, unlike some high density floppy drives available with the A3000, this is not achieved by cutting its speed.

The other machine is set to replace the out-dated A1500/A2000 range. Based on a 16MHz 68030 processor, it has variously been called the A800 or the Classic, but given that 'Classic' is registered to Apple and Kelly Sumner has denied all knowledge of an A800, neither of these names are to be taken too literally. Like the A4000, it includes the 'AA' chip set and Kickstart 2.1. Its memory is expandable to 16Mb Fast RAM and 4Mb Chip RAM. It has the same high density floppy drive as the A4000 and a 52Mb hard disk.

Both machines utilise the Zorro III expansion slots as found on the A3000, but the machine known as the A800, housed in a shallow pizza-box style case, has more limited expansion capabilities.

NEW 'AA' CHIPS

The new 'AA' chip set, as well as adding new graphics features, retains close compatibility with the existing ECS of the A500 Plus, A600 and A3000. A number of new graphics modes are supported: 800x300 and

800x600 (interlaced) with up to 256 colours on screen at once with no restrictions; and 1280x480 and 1280x960 (interlaced) using HAM to give up to 4096 colours. The Amiga's palette has been expanded from a choice of 4096 colours to a choice of 16.7 million. In addition, a SuperHAM mode has been included which enables all of these colours to be used at once in the standard Amiga resolutions with restrictions similar to the current HAM mode. Screens in this mode may be animated at up to 30 frames per sec.

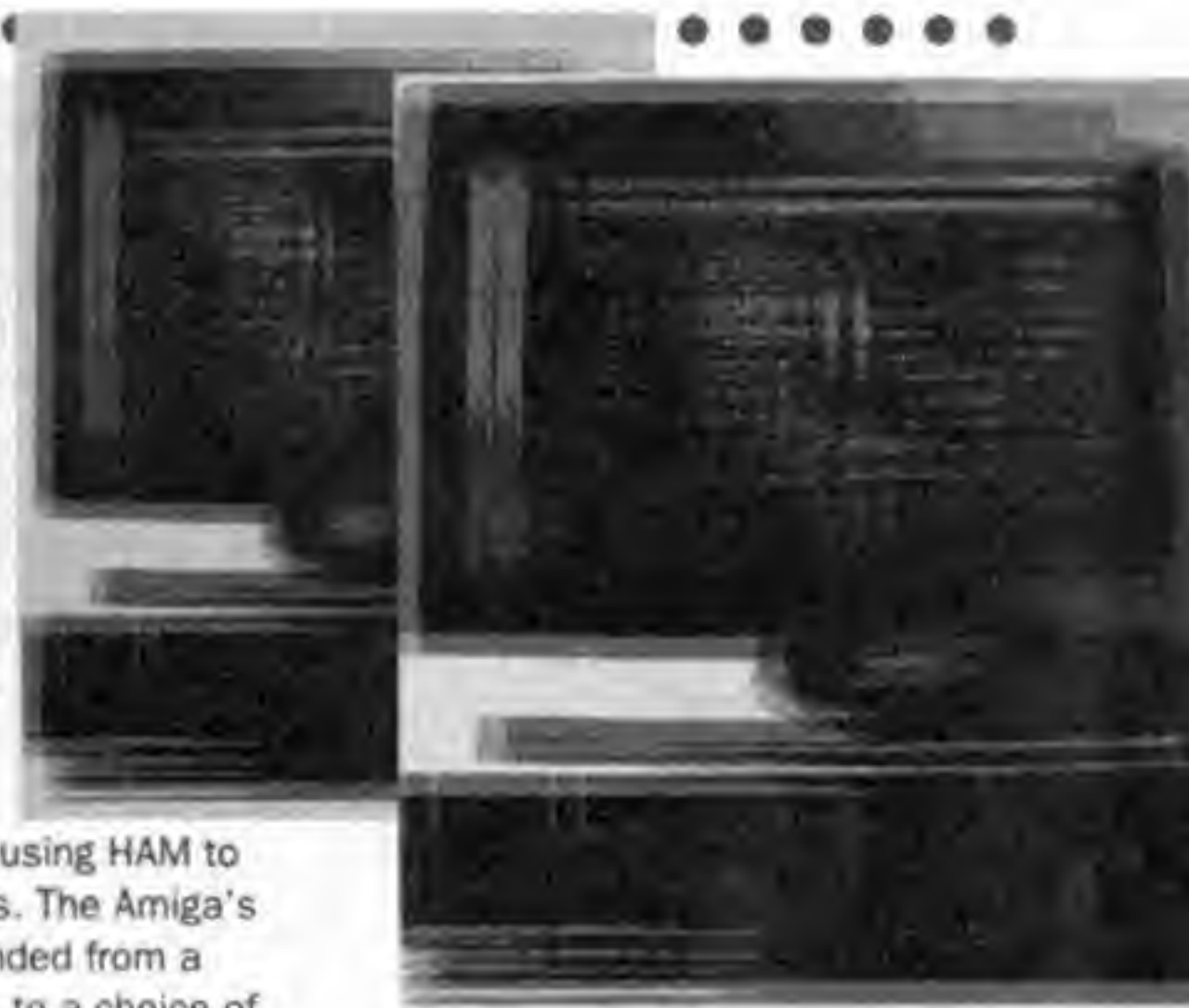
The Amiga's hardware sprites have been improved such that they can now consist of up to 16 colours, and be a maximum of 64 pixels wide. Their height is unrestricted. Flicker is removed from all interlaced modes by means of a built-in de-interlacer chip.

The new Amigas have been beefed up on the sound front, too. They both come with a built-in digitiser which will sample sounds with 8-bit resolution at 22KHz. Sound output is even more impressive. Four 16-bit channels are provided which are capable of reproducing frequencies of up to 56KHz. These

channels can be used to emulate eight 8-bit channels at 56KHz or 16 8-bit channels at 28KHz.

A new Motorola Digital Signal Processor chip is also believed to be included with both models – this is a microprocessor in its own right, working alongside the central processor. It is a 24-bit device clocked at 27MHz that can be programmed to perform complex sound processing operations at high speed. These could include sophisticated filtering and sound manipulation effects.

As well as the standard Amiga ports, the new machines also have a microphone port, a MIDI port and a PCMCIA credit card slot. No prices or details of availability are known, except that the cheaper of the two will come in at a price above that of the A1500, and that at least one of them is due in four months.



OH BRAINLESS ONES

I am shocked at this childish playground attitude adopted by both you and your readers about the arrival of the A600.

I am a very proud owner of one and think this is a remarkable computer! The A600 is the first computer I have bought, having arrived at this decision to buy one because my SEGA console is not what I want anymore – and I love it!

It's more compact than the bulky, slab-like 500, and looks more attractive! Granted, its arrival is a bit obsolete, but don't knock it until you've tried it! I totally resent the remarks made by some of your readers about its size and its seemingly "console" like approach.

These comments come from a bunch of closed-minded misnomers who cannot swallow the fact that the A500 is history and that the light isn't in their ball court any more!

You lose, oh brainless ones!

Long live the A600.

Gary Entwistle
Tonbridge

Hmmm, I think 'childish playground attitude' is a bit strong there, Gary – we adopted an even handed response to the story in our news reporting and in these letters pages. But many A500 owners were somewhat peeved and said so in no uncertain terms. Now, I don't want to get drawn into a My-Amiga-is-better-than-your-Amiga type argument here, but hey! loosen up will ya! I'm sure the A600 has got a helluva lot going for it. As you say though, the err... light... is in its err... ball court.

HYSTERICAL

I read with amazement the hysterical reactions of A500 owners to the discontinuation of their machine in last month's *Amiga Shopper*. In particular I was surprised at Margaret Haedicke's assessment that the A600 is "mainly for games" and Mr Scott's view that the A600 was unexpandable.

What utter rubbish! Please explain to me how a machine with exactly the same processor and graphic specifications as the A500, but with the added advantage of a built-in hard drive interface and TV modulator, can in any way be described as a games machine?

The almost crazed and illogical ravings that I was forced to read in your magazine really made little sense. The authors were obviously just jealous that now people can go out and buy an A600 for the same price as an A500 and revel in the advantages of hard drive interface, portability and incredible reliability that the new machine offers.

Certainly to describe the A600 as a games machine or as inferior to the A500 is showing crassness not worthy of an Amiga owner!

In my mind the A600 is a worthy entry level machine offering a cheap and easy upgrade path to hard drive ownership whilst still having two expansion slots like the original A500.

Although I now have a B2000, I did own an A500 for many years and I would have much preferred an A600 to my A500 – the AT hard drives it uses can be picked up for as little as £100 and the saving in desk space is phenomenal.

As far as I can see, the A600 is every bit as expandable as the old A500 as no doubt accelerator boards, 8Mb RAM expansions etc will soon be designed to fit on the PCMCIA slot. The A600 is the perfect machine for home and hobbyist use; I am only disappointed that it was not released several years ago.

Certainly no other computer can offer such power at such a low price. Don't be fooled by statistics, my 7MHz B2000 can stuff a friend's 16MHz 286 PC out of sight on graphics manipulation and sound.

Stick with the Amiga and Commodore! The new range of Amigas and the new improved

"The crazed and illogical ravings I was forced to read really made little sense"

graphics and sound which are on the way will certainly be something worth beating the PC owning world with!

Daniel Brookings
Great Yarmouth

Yes, some good points there Daniel. The main criticism levelled at the A600 is its alleged lack of expandability. As such it's seen as a games machine.

But the PCMCIA memory card slot is indeed there for the taking and as CBM's new UK MD, Kelly Sumner, assures us in the interview on page 9, there are loads of third party developers busily hacking away at it at this very moment.

Like so many new advances though, it's a question of Time Will Tell. And, forgive me for swearing, but Atari has a new £399 super ST coming out this autumn which could very easily take sales away from the A600. The quicker the A800's on the street, the better.

Talking Shop

A600 FIGHTS BACK

Last month we devoted all of *Talking Shop* to the flood of letters commenting on Commodore's decision to cease production of the A500 range. The verdict was, to say the least, highly critical – much of the flak targetted at the Amiga A600. Which, as you might expect, provoked a number of enraged A600 owners to set the record straight...

A600 EXCELLENCE

I have observed many reactions to the release of the A600 and the demise of the A500 and most think that this is a bad move by CBM.

I, however, think it is an excellent move.

The Big C has already announced that it intends to release new Amigas soon – as the A600 is just a taster of things to come.

OK, so the A600 will be incompatible with a lot of hardware, but before people go jumping to conclusions and start asking where this leaves users who wish to expand their machines, consider the following...

The majority of people who will want to purchase the A600 are people who not only want to play games but also to use it to type out the odd letter.

If a user wants to do any more than this then they would be better off purchasing a semi-professional type machine like the A1500/A2000 or the much rumoured A800 when Commodore releases it.

The A600 is a step forward for the Amiga and is perfectly designed hardware wise – if you want to load the Amiga with accelerators and the like then buy a machine that is designed to do that.

Maybe one of Commodore's new machines will be a portable; the miniaturisation employed in the A600 sure makes this possible.

Existing A500 owners must not despair, the A600 will ensure the future of the Amiga in the 90s and beyond.

Philip Chung
Cheltenham

Yes, and in your last paragraph you hit the nail firmly on the head. Don't think there's much chance of a portable though.

A600 NEGATIVITY

I really can't understand why everyone is so negative about the new A600. The A600 is quite simply a recased A500 Plus but with the bonus that you can now have a hard drive, for the price of an external drive and a half meg upgrade, just eighty pounds! So you now don't have to pay the ridiculous price of three hundred pounds for the simplest hard drive.

Your average Amiga owner aspires to a hard drive and a few megs of extra memory at maximum. You can have all of these things on an A600 for a lot less dosh than an A500, this is a fact. The few things



that you cannot do with an A600 are exclusive to say the least, when you consider the number of people who can afford to buy accelerator cards etc these days.

The simple fact is that the A600 is here to stay and all the whingeing in the world from the techies who mourn the loss of their best friend will not bring back the over-sized A500.

I had an A500 for three years and loved the machine but time moves on, and in my opinion the A600 is much more desirable than the chunky old faithful and also more reliable.

The simple fact is that the *Real 3D* images I now produce on an A600 look just as good as the ones produced on an A500. But now I can save them to my hard drive!

It is just a pity that *Amiga Shopper* couldn't take a positive attitude and welcome the A600 for what it is, the best cheap home computer on the market, which will

"The A600 is much more desirable than the chunky old faithful"

give you access to the wonders of DTP, 3D modelling, word processing (and perhaps even the odd game) at a reasonable price with great reliability.

Steve Summerskill
Wakefield

Fair enough. I honestly don't think you can accuse us of taking a negative attitude though, Steve. Maybe we didn't go over the top about the arrival of the A600 but then I don't feel there's a great deal to go over the top about. It's a neat machine, sure – but nothing to knock your socks off. Now that's not being negative – being negative is me printing in a national magazine "The A600 is a waste of space". Which it ain't.

A BUNCH OF LEMMINGS

The *Talking Shop* column in issue 16 about the A600 and Commodore in general really got on my ribs. Just because Commodore brings out the A600 and stops producing the A500 everyone seems to think it is the end of the Amiga.

So many of the letters I have read gave me the impression that the writer was going to do a Lemming!!

Anyone remember the Plus 4, C16 and CBM 128? Total flops brought out by Commodore as the next step forward. You have to remember that with the bad you get the good. The Vic 20, the CBM 64, brilliant for its time, and now the Amiga. The Amiga was such a major advancement from the CBM 64, but the A600 is not the next step up. It is not technically superior.

The A500 has not yet reached its peak, there are a good 5-10 years left in the old girl yet.

You don't think the third party developers are going to chuck all their A500 goodies and start producing A600-only goods, when there must be less than 10,000 A600s in the UK homes, if that.

One other thing, why should A500 users worry whether the A600 is upgradable or not, if someone wants to buy an upgradable machine, then they won't buy the A600, which will show in the numbers sold, and make Commodore realise what a mistake it has made. All you readers stop fretting, you already own a good, solid, upgradable machine, why worry about a machine you don't like anyway?

Also what is this obsession with chucking the Amiga and getting a PC? You need at least £800 for a decent bog-standard machine.

JS Smith
Sheffield

I think eventually the A600 will become an upgradable machine. There's one line of argument, ably presented in the next letter funnily enough, which claims that the A500 range was scrapped precisely because of its upgradability. Sales of A1500/2000 and 3000s were suffering as a result, as were Commodore's attempts to market its own expansions and peripherals. But it's also got a lot to do with cheaper construction costs and greater reliability.

Expandability will come for the A600 though because there's always a demand for maximising what you've already got without splashing out on a brand new machine. That's what propels the PC market and presumably that's why a few readers thought the PC was a more future-proof option.

UPGRADE CONSPIRACY

I am writing in reference to Commodore's "new baby", the A600. It's got A500 owners everywhere paranoid that the third-party developers will just turn their backs on them as if the mighty A500 never existed.

As for becoming obsolete, it is still an Amiga after all, with the same software base as the 2000

and 3000, and that's not going to change much for this new computer.

Commodore's marketing strategy is obvious; keep the games players with the A600 and force the hobbyists and "serious" users into buying a bigger, more expandable machine. This has always been their game plan but the A500 proved to be just as expandable as any other Amiga. There are a wide variety of peripherals for the A500; high power accelerators, 24-bit graphics boards, 10Mb of RAM, anything a serious user would demand from a computing system.

I think in the eyes of Commodore it became too easy to transform an A500 into a beast more powerful than the top-of-the-line 3000. Surface Mount Technology will take care of that, and then customers will have to get a bigger Amiga, or a big ugly PC.

Commodore will have to develop a more advanced middle-range machine if it doesn't want to be alienated from the "serious market" of the PC and Macintosh, especially with the current pricing trend.

Amigas are no longer the great bargain they used to be, and the new range will stand or fall on its own merits, not a cheap price tag. This can be done, but the Amiga is going to have to evolve into a more powerful machine, sporting a 68020 as standard, and a 040 and at least true 12-bit graphics for the top of the range.

As for existing Amiga owners, I say only this. Don't worry about your computer becoming obsolete. Developers will be making peripherals for the A500 for a long time to come and Commodore is just about to release the A570 CD-ROM. It's the A600 the third parties might not support. Anyway, if your system does what you bought it for, what's the problem?

PB Stanley
Stamford, Lincs

I think the Amiga is already alienated from the serious market if you define this as being anything other than video and 24-bit graphics work. While Amigas are clearly capable of handling serious applications, they're not perceived as anything more than souped-up consoles by the business user. Yet with the A3000 you have a machine that'll give most Macs and PCs a run for their money. There's one way this can be rectified and that's for Commodore to start promoting it as a serious machine range. Full stop.

YUPPIE GEAR?

In his August AmigaDOS column, Mark Smiddy asks "Does anyone out there still use AmigaDOS 1.3?"

Well yes actually, chum. Gosh it is a "nightmare" – that blue screen and nasty topaz font mocking my lower status in life. All those bugs! Oh, it's so slow and horrible! Heck, I can barely show my face in public without being pointed out as a 1.3 throwback.

But there's little I can do to improve my predicament. I can't afford the £80 upgrade to Snob-bench 2.0, being a student rather than a highly paid, fantastically rich computer journalist.

Looks like I'm stuck with this archaic 1.3 thing that I and several million other Amiga owners have been using for years now.

"It became too easy to transform a 500 into a beast more powerful than the 3000"

We'd all like to own 52Mb hard drives, high-res monitors, ECS and the latest versions of software; versions that your writers urge us to buy as they are a "vast improvement" over the previous releases that they led us to believe were perfectly fine until recently.

Frankly I'd rather *Shopper* devoted a little more space to telling me how to make use of what I've got rather than suggesting 1,001 different ways to spend money I haven't got.

I appreciate that Mr Smiddy did, in fact, devote his column to updating a previous program for 1.3 DOS, but he could have done it without the condescending introductory paragraph.

Please inform your staff that many of us are operating on far less than what they consider to be the minimum requirement for an Amiga system.

Ade Rixon
Warrington

We try and draw a balance which is more heavily weighted to tips, advice and tutorials than new product reviews, but we can't ignore advances. However, you'll be pleased to know that next ish we're bringing you a 32 page *Amiga Answers Special* designed to help you get more from your machine.

NO THIN ENDS HERE

In issue 15 page 56 Mark Smiddy devoted almost a whole column to a



I CAN LAUGH ABOUT IT NOW...

The following might save your readers some trouble. At one point I found that the internal disk drive in my Amiga was scratching and destroying disks. I removed, cleaned and replaced the recording head. Realignment was a bit of a fiddle but for a long time I kept having to repeat the realignment at frequent intervals, although there was no obvious fault. - it became such a nuisance that I was on the point of buying a replacement drive.

To cut a long story short, I discovered that the trouble was caused by magnetic interference from the monitor (whether from the loudspeaker magnets or the tube field coils, I do not know). The internal magnetic shield of the computer was not totally effective.

The cure: a steel biscuit tin lid is now attached to the underside of the shelf which supports the monitor above the right hand side of the computer. This has proved completely effective.

H Owens

Thanks there, H - send me your address and I'll send you a fiver. As I will to anyone else who sends in a published solution to: 'I Can Laugh About It Now, Amiga Shopper, 30, Monmouth St, Bath BA1 2BW.

games question - not much in so many pages, I grant you, but is this the thin end of the wedge? One this month, five the next!

PJ George
Loughton, Essex

In fact it's one this month - check out page 120 - and then erm... none for the rest of eternity. Now can we leave poor Mark alone?

PD RIP OFF FILTH

I am a middle-aged newcomer to computing and I wish to start by telling you that, although I have had my Amiga for only a little more than a year and had to start to learn about computers right from scratch, I feel that I am doing quite well. I use several of the music programs and am finding this of great assistance in the line of business I have chosen following my retirement after 35 years in the police service.

I am a regular reader of *Amiga Shopper* and I found the article by Jason Holborn in the July issue regarding PD quite interesting.

However, Jason omitted to mention probably the most pertinent

point regarding PD houses. He did not say that there is a positive chance that some of your readers who send their orders and their money to some of the PD houses who advertise in your magazine will not receive a reply, nor their disks, nor their money back.

It goes without saying that many of the 'houses' give an excellent service and, in one instance, 6 disks arrived at my address within 36 hours of my posting the order. However, unfortunately, there are those who do not supply the goods, nor do they return the cheque. They cash it instead! I have been defrauded three times. For various reasons I'm not prepared to name the 'houses' who have failed in their commitment and, in doing so, have indirectly discredited your magazine.

Another point Jason failed to mention was the fact that there is an unnecessary amount of obscene and other unpleasant language used on some of the PD disks. I don't suppose I need to go into detail but I will refer to one particular music disk I bought. Being new to it all, and self-taught, I obviously make many mistakes when trying to run my software. On one of these disks, each time I do something wrong, a rather disgusting message flashes up saying 'F... Off, Lamer' etc. Is there any need for this?

What sort of people are these faceless perverts who thrill to using this language, knowing full well that the persons most likely to be confronted with it are young persons and children?

I realise, of course, that there is nothing you can do about the way sick programmers write their materials, nor is there much you can do about the contents of disks sold by the PD houses. However, I would like to know what sort of scrutiny you subject your advertisers to before accepting their money for advertising.

Are any steps taken to check out the bona fides of would-be advertisers, or can anyone who might use a garden shed or a spare room in a lodging-house as a temporary address set up a business as, and advertise as, a PD house?

I am sure most of your 45,209 readers would be delighted to know the answers of these questions.

JD Martin
Hull

Well, first of all, I'm sorry to hear you've been subjected to abuse and ripped off on a number of occasions. Unfortunately, in the first instance, we have to take adverts placed with us on the basis of trust. Other than the normal credit checks we can't

assess a company's morality. It's only when we receive complaints from individuals who've been mistreated that we prevent that company from appearing in our pages. And then again, we can't rely on isolated incidents - there has to be a number of complaints from people over a period of time so as to make sure we're just not acting on someone's private vendetta or a temporary mail order processing problem.

So I'm afraid it's a difficult judgment to make - after all, what's the alternative? - no ads from small companies? Like all walks in life, there's always a small minority who spoil it for everybody. So, I guess you just have to make sure you deal with reputable suppliers...

unlike the CD-I. I have seen the first batch of releases on the machine and it really is a joke. If you did a comparison of the worst CDTV title compared to the best CD-I title, you would see what I am getting at. Now on to the writer of the advert. If he had taken time to actually use the CDTV and some research, he would know that the machine is not dead and that most of the owners are very pleased with the machine and that good software was starting to appear. *Sim City* is absolutely amazing. It has four full sound tracks on it. I have also had a look at the *Trivial Pursuit* game. This is one that interests me because of the size of it. It comprises of two CDs. That's over a gigabyte of information!

If you bought CDTV and are now living to regret it read on

Commodore made multimedia available to the masses with the Dynamic Total Vision (CDTV), but it looks set for dinosaur status in the light of Philips' impressive Compact Disc-Interactive (CD-I). Chris Cain's (Senior Staff Writer PCW) comparison of the two systems gave him the best hardware experience he's had for five years...

Personal Computer World July 1992

Did you bet on black and it came up red?
Did you buy Betamax when everybody bought VHS?
Have you booked your summer holiday in Yugoslavia?
I bet you've got CDTV.

We'll don't worry we won't take the micky anymore because you're not the only person who fell for all the hype, but don't panic, Captain Diamond as always is here to save the day. You can bring your old CDTV into any branch of Diamond until the end of August and we will give you a brand new all singing all dancing CD-I system for only **£599**

Diamond Computer Systems' advert in last month's *Amiga Shopper* came as something of an insult to Mark Smith and Graham Dixon. Now who was it who said that ads were boring? (We'll have the dosh for the re-run too lads!)

DIAMOND CDs

May I for a brief moment leave the A500 Plus and bring your attention to another Commodore wonder - the CDTV. I own one of these machines and after reading the Diamond advert in your August 1992 edition on page 128 I was feeling rather ill. Could you write some kind of soothing words to restore my lost faith in the machine, if not I might just do something drastic like get CD-I instead.

Mark Smith
Liverpool

CDTV/CD-I

I was infuriated to read the Diamond computing advert in your last issue, about the CDTV and CD-I unit. The advert suggested that the CDTV was dead and that the owners of the machine should trade them in for a CD-I. I have had my CDTV for just two months and am amazed by it. I am writing this letter on the machine at the same time as listening to a music CD. Try doing that on the CD-I unit!

Secondly the CDTV has software

If I were the editor of your magazine I would drop the Diamond advert because it doesn't do much for sales of your magazine.

Graham J Dix
High Wycombe

Yes, bit of a naughty one that ad, wasn't it? But only if you believe there's any truth in the assertion that CD-I is better than CDTV. For an Amiga owner there's no choice really - more and more Amiga software will be appearing on CDTV.

Actually, in this respect, Commodore is offering a better deal than Diamond - trade in your A500 for a CDTV with keyboard and disk drive for only £399. Diamond might be better off trying to beat that. Bet it can't...

YOU GOT A VIEW? WE'LL SEND IT TO:

Talking Shop, Amiga Shopper,
30 Monmouth St, Bath BA1
2BW. Go on - join the Amiga's
liveliest letters pages!

Jason Holborn ventures forth into the world of dungeons, dragons and fair maidens with *Visionary*, Aegis' new adventure game authoring system. Could you create the next bestseller?



This *Dungeon Master* clone serves as a perfect example of what is possible with *Visionary*. It's just a shame that it takes so much work to achieve this sort of result!

TO A KILL

These days you don't have to be a genius with an assembler to write games. Thanks to packages such as Palace's *Shoot'em up Construction Kit* and – more recently – Domark's *3D Kit*, Amiga owners have been able to churn out fast arcade games complete with fancy sprites, smooth scrolling and even solid 3D graphics with not a single opcode or status register in sight.

The popularity of Europress' AMOS is proof enough that Amiga users want to create their own games. Although Europress has gone to great lengths to stress AMOS' other uses, it doesn't take a brain the size of a planet to realise the true nature of the beast. High speed hardware scrolling, copper rainbow effects, blitter objects and interrupt driven music are hardly the kind of facilities that your average spreadsheet programmer is ever going to need.

There's no doubting that arcade fanatics are certainly well served, but developers have sadly ignored the one type of game that arguably started the computer gaming craze in the first place – adventure games. Even Incentive's *GAC* (*Graphical Adventure Creator*) never quite made it to the Amiga despite the fact that Incentive converted it for just about every machine under the sun including the Amiga's closest cousin, the Atari ST. Shame on them!

INSTANT TALENT

Spotting an obvious gap in the market, Stateside developers Oxix/Aegis have come up with the goods in the shape of *Visionary*, an adventure creator that Aegis claims will turn you into a top game developer overnight! Loading up the two demo games that are bundled with *Visionary* (one of which is a very



GAC it may not be, but *Visionary* is capable of producing graphic adventure games which would have turned Infocom green with envy!

good *Dungeon Master* clone), this claim certainly seems to be true. They are quite simply of commercial quality and as a yardstick of the program's capabilities, *Visionary* seems almost too good to be true.

All this power comes at a price, however. If you're expecting *Visionary* to be another *GAC*, then I'm afraid you're going to be disappointed. *Visionary* is actually a BASIC-like programming language which has been specifically designed to handle the task of writing adventure games.

So what's the point? I hear you ask. Sure, it could be argued that AMOS is just as qualified to handle adventure games, but what makes *Visionary* so special is that the heart of all adventure games, the parser, is built in to *Visionary* so you don't have to worry about coding your own. As a result, your adventure games will boast a parser that would have turned even Infocom (the masters of the adventure game genre) green with envy. Obviously *Visionary* allows you to modify it to suit your own particular needs, but it's nice to

know that this all important routine is available 'off the shelf' so to speak.

SOURCEY DEVIL

The *Visionary* development system consists of two programs – VCOMP

(the *Visionary* compiler) and VLINK (a dedicated linker). Both of these programs are Shell-based, so you're going to need a pretty good knowledge of AmigaDOS to get them running. To create an adventure, you must first produce a series of source files that are then passed to the *Visionary* compiler for compilation. If no errors are found (they usually are!), the object file generated by the compiler is then passed to the *Visionary* Linker which produces an executable which can be run independently of *Visionary*.

Visionary programs don't just consist of a single source file. Instead, each aspect of your game must be split into a strict series of separate files that define such things as the startup code, the map data and objects. Each of these files must follow strict filename conventions for the compiler to recognise them. If all the source files that are needed are not present, the *Visionary* compiler will take exception and throw your

JARGON BUSTING • JARGON BUSTING

Adventure Game – An adventure game is best viewed as a sort of interactive book whereby the player (*you*) makes the decisions which affect the outcome of the story. Traditional adventures were completely text based – instead of relying upon fancy graphics, the adventure weaved a yarn through the quality of its descriptions. The player interacted with the game by typing in English sentences ('attack editor with sharpened mouse', for example). Classic examples of the adventure game genre include *The Hobbit*, *The Pawn* and Infocom's tongue in cheek *Hitch Hiker's Guide to the Galaxy*.

Parser – All adventure games that are played by entering English sentences via the keyboard ('Take apple', for example) share a common routine called a parser.

A parser is a routine which takes the string that the player enters and breaks it down into a series of commands and parameters that the game can act upon. In the example above, the parser would break the string 'Take Apple' down into one command and one parameter – 'Take' and 'Apple'.

Like a programming language (and indeed the English language), the

source files back at you.

At its simplest, an adventure must contain at least two files – a rooms file (<filename>.rooms) and an adventure file (<adventure>.adv). The most important of these two files is the .adv file that the compiler reads in first. This file basically contains all the startup information required to get your adventure running plus a few global definitions that you may need to make. Once this has been processed, the compiler then reads in the rooms file which contains the code to control the map data and the player's movement within your virtual world.

MIND YOUR LANGUAGE

The *Visionary* language itself is actually a very capable beast indeed that is based heavily upon BASIC. It includes all the constructs that you would expect from a modern BASIC

```

AmigaDOS
Visionary Compiler 1.00
Copyright © 1990, 1991 and developed by Kevin Klein

Input File = "Dungeon.RDV"
Pass 1
Declarations.....
ROOMS
  dungeon.rooms.
SUBROUTINES
  dungeon.subs.....
Pass 2
ROOMS
  dungeon.rooms.
SUBROUTINES
  dungeon.subs.....
End of Compilation.
Writing... Done.
^
1> VLINK Dungeon
Visionary 1.00 Done Linker

Copyright © 1990, 1991 and developed by Kevin Klein

Generating game Dungeon
Linking Dungeon.GAM
  
```

There's no flashy intuition-based front end here – both the *Visionary* compiler and linker must be invoked from the AmigaDOS Shell

```

PRDTEXT v5.06 (c) Brnor. Program Potion.rooms (4K)
Ch 486 Line 36 Col 1 No markers set Ins S 04:39:01

Call ClearButtons
click 34, 16, 5, 48, 28, SeeSun
click 35, 116, 13, 186, 42, SeeTreeTop
click 36, 116, 37, 147, 185, SeeTreeTrunk
click 37, 237, 46, 247, 53, SeeIsland
click 38, 5, 46, 249, 89, SeeOcean
click 39, 5, 31, 249, 131, SeeSand
click 40, 5, 5, 249, 45, SeeSky

placeobj treetop, thisroom
placeobj ocean, thisroom
placeobj sand, thisroom
placeobj sun, thisroom
placeobj sky, thisroom

if thisroom not visited then
  stx:="You stand by a single tall palm tree."
  call print
else
  stx:="You're back by the tree."
  call print
endif

if BvTree not started then
  call StartUp2
  
```

Visionary insists that the source code for your adventure game is split into a set of discrete source files. Here's only a small section of the absolutely massive rooms file which is required for the *Visionary* demo game

including IF..THEN..ELSE..ELSEIF and WHILE..ENDWHILE etc. Like AMOS, *Visionary* also includes a comprehensive selection of Amiga-specific commands to handle sound

tracks and graphics. Using its powerful screen buffers facility, it's quite possible to create anything from a simple graphic adventure like *Magnetic Scrolls' The Pawn* to even

mouse-driven adventures like *Monkey Island* and *Dungeon Master*.

Graphics can be incorporated into your game by drawing them within *DPaint* and then pulling them into a screen buffer using the LOAD SCREEN command. *Visionary* supports graphics in just about any screen mode and resolution including Extra HalfBrite and even HAM. By defining discrete 'views', resolutions and screen modes can even be mixed (a HAM picture in the top half of the screen and a medium resolution text region in the bottom half, for example). If you need to change any part of your graphics, *Visionary* also supports a number of generic drawing commands (some of which put even AMOS in the shade).

Hot spots are also another powerful aspect of *Visionary*. Unlike a traditional graphic adventure, the player of your game can interact with objects using the mouse simply by setting up a series of hotspots. For example, if a scene contained an object such as a copy of *Amiga Shopper*, the player could examine the object simply by clicking on it.

Your games aren't just restricted to graphics. Like AMOS, *Visionary* provides direct support for sampled sounds and sound tracker modules saved in standard MED format.

CONCLUSION

There's no doubt that *Visionary* is a powerful system that is capable of producing adventure games of commercial quality, but getting *Visionary* to produce even the most basic adventure game with nothing more than just text takes a great deal of work.

Having struggled through assembly language, Cobol, C and AMOS, I must admit that the thought of learning another language didn't exactly fill me with enthusiasm.

Aegis claims that *Visionary* is a

very straightforward language, but I'm afraid I'm not totally convinced. Although its command set is fairly straightforward, the amount of work required to get a game off the ground is quite over the top.

Many of the coding tasks could easily have been handled via some form of source code generator. Indeed, I ended up coding my own map creator in GFA BASIC simply because I couldn't face having to write the source code myself.

It took me little more than a quarter of an hour to realise that some form of source code generator was needed, so I'm surprised that Aegis itself didn't come to the same conclusion.

I have to say that I'm impressed with the power of *Visionary*. It isn't the answer to everyone's dreams, but coders will no doubt love it. I feel that there is room in the Amiga marketplace for a utility such as Incentive's GAC, even if it isn't quite as flexible as *Visionary*.

If you can face learning another new programming language, perseverance will reap substantial reward. The results obtainable from *Visionary* are out of this world. It's just a shame that so much work is involved! **AS**

CHECKOUT AEGIS VISIONARY

Ease of Use ●●●○○○

If you're expecting *Visionary* to be another STAC clone, forget it – *Visionary* is definitely for coders only.

Features ●●●●○○

If you can fight through its rather unstable command set, you'll find *Visionary* to be a very capable performer.

Documentation ●●●●○○

As you'd expect from a programming language, *Visionary's* manual is well written and comprehensive.

Price Value ●●●○○○

If you're prepared to put in the work needed to get the most from *Visionary*, it's worth every penny.

Overall rating ●●●○○○

Something of a missed opportunity maybe, but *Visionary* is still very capable. It's just a shame that it isn't more accessible for the average user.

SHOPPING LIST

Aegis Visionary.....£59

Available from:

Precision Distribution

171 Bath Road

Slough

Berks

☎ 0753 551888

JARGON BUSTING • JARGON BUSTING

parser knows that each command will follow a strict set of guidelines. If the parser finds the word 'Take' for example, it would then check to see whether a parameter follows. If it doesn't, you'll be presented with a line that reads something like 'Take what?'. If a parameter does follow though, the parser knows that because the player is trying to 'take' something, the parameter must contain the name of an object within the current room that can be picked up. It then checks to see whether that object is there and whether it can be picked up and then acts accordingly.

Simple parsers are generally quite easy to write because the 'commands' that they accept follow a strict format. A decent parser however (like the one in *Visionary*) is far more flexible and will accept 'Take the red apple' or just 'Take apple' without batting an eyelid.

Compiler – A compiler is a separate program that converts the ASCII text file that you create (your source code) into a stand-alone program. Although still not as fast as pure assembly language, compiled programs usually run considerably faster than their interpreted counterparts (AmigaBASIC is interpreted, for example).

The great DTP dilemma

Jeff Walker takes stock of the latest versions of Professional Page, PageStream and Saxon Publisher, suggesting which one you should buy and why...

BEGINNERS

Even if you have had a lot of experience at word processing, the transition to desktop publishing is not always an easy one.

Word processing places certain restrictions on what you can and cannot do, it's a bit like painting by numbers. Desktop publishing is all about freedom of expression – you are given the canvas, the brushes and the paint, the rest is up to you.

Not everyone is suited to DTP, you have to have a degree of flair for design, or at the very least a desire to design, otherwise the frustration builds up as page after page comes out looking like a pair of dingo's kidneys.

To desktop publish properly, with complete freedom I mean, you need various things. You need lots of memory – the more the better, but at least 3Mb. You need a hard drive because loading fonts, pictures and text from floppies tends to dampen the enthusiasm for design. And you need good software – which is what this article is all about.

But this all costs money, and you'll not want to spend a fortune only to find that you and DTP

BEGINNERS START HERE

BEGINNERS

don't see eye to eye.

The answer is to test the water first. Buy a budget DTP package that works almost exactly the same as a professional one. There's only one choice, *PageSetter II*.

Now *PageSetter II* is nothing like the version of *PageSetter* that was given away on the cover of our sister magazine, *Amiga Format*. In fact that version (1.2) does *PageSetter II* a terrible injustice because people tend to think that *PageSetter II* must be just like *PageSetter 1.2* but with a few improvements.

It's nothing like it. It's actually a black-and-white version of an earlier incarnation of *Professional Page*. It supports the Compugraphic font format, and looks and operates almost exactly the same as *Professional Page 1.3*. And although various advanced features are missing, *PageSetter II* can actually do a few things that even *Professional Page 3* can't.

So if you are a beginner and are thinking about getting into desktop publishing, there is no better place to start than *PageSetter II*.

It's been more than a year since we reviewed *Professional Page* and *PageStream*, and in that time Gold Disk and Soft-Logik have added improvements to their packages. *Professional Page* has moved on to version 3.0, *PageStream* on to version 2.2, and the other Amiga DTP package, *Saxon Publisher* from Saxon Industries has gone from version 1.1 to 1.2. It's time to take stock and look at all three as they stand today.

WORDS

Publishing is all about getting a message across to whoever is reading your publication, so the

means that you do not need to buy a separate word processor and spelling checker for preparing and editing text, but *Professional Page* itself has a simple built-in text editor should you wish to change text directly on the page; it works quite slowly, however.

PageStream does not come with a program with which to prepare text, so you will need a word processor if you don't want to use *PageStream*'s built-in text editor which, like the one in *Professional Page*, works slowly. This text editor does include a spelling checker, but it is so slow that I can't imagine anyone wanting to use it for anything but checking the spelling of very small sections of text.

There is, incidentally, a brand new package available, *HotLinks*, which provides a text editor that links to *PageStream* like *AE* links to *Professional Page*. For more info on this, check out last month's issue of *Amiga Shopper*.

Saxon Publisher doesn't come with a text preparation program either. But it has a built-in text editor which, again,

operates slowly. Like *PageStream*, you need to buy another package, only this time there's no hotlink available.

Professional Page is clearly winning the text importing and editing battle, with *PageStream* running a close second.

FONTS

But it's a different story for font support. *Professional Page* works with only Compugraphic or Amiga bitmap fonts.

The bitmap font support is there to speed up things for PostScript users – they would use the bitmap font on screen because it draws itself faster than the Compugraphic equivalent, but at output time it is the PostScript font of the same name (built into the PostScript device, or downloaded to the PostScript file) that gets used, which again is quicker than rendering a Compugraphic font.

Now there's nothing particularly wrong with the Compugraphic font system except that there are relatively few commercial Compugraphic fonts available, and next to no shareware or PD Compugraphic fonts. However the latest version of *Professional Page* comes with a *FontManager* program which is able to convert Adobe Type 1 fonts into Compugraphic type fonts, so the Compugraphic font



PageStream supports Adobe Type 1 fonts as well as its own outline font format and Compugraphic fonts features of a DTP package relevant to putting words on the page are arguably the most important.

All three DTP packages can import generic ASCII text, and all three can import text directly from *ProWrite*, *Excellence!* and *WordPerfect*, automatically translating any style codes such as bold and italic into the DTP program's equivalent. On top of these, *PageStream* supports text prepared with the *1stWord* and *Rediger* word processors, and *Professional Page* also supports *KindWords*, *Scribble!*, *TextCraft*, *TextCraft Plus*, *TransWrite* and *PC WordPerfect*.

Professional Page comes with its own 'article editor', called *AE*, which is basically a version of the *TransWrite* word processor with the printing features removed. There is a 'hotlink' between *AE* and *Professional Page*, so to alter a section of text all you need to do is mark it as a block, press *LeftAmiga* /, and *AE* loads with your highlighted text ready for editing. When you've finished another *LeftAmiga* / sends the text 'home' to *Professional Page*, into the exact same place on the page it came from.

This hotlink between *AE* and *Professional Page* works well and

All prices incl. VAT

TEL:
0446
421316



7-8 SULLY VIEW
Ty Verlon Industrial Estate
Barry CF6 3BE

FAX:
0446
420404

ROCLITE 3.5 SLIMLINE DRIVE



Amiga Format says "beautifully made slimline drive, quick and quiet with all the extras - 85%".
* 3.5" 880KB External Drive
* Access time: 3ms track to track
* 0.9" high
* Enable/disable switch
* 23 pin pass through socket
* Allows connection to a 3rd drive

£52.50

AMIGA EXTERNAL HARD DRIVE



SPECIAL PURCHASE LOWER PRICES

- * External hard drive for Amiga 500
- * Built in Autoboosting
- * On board Ram option up to 8Mb
- * Beginner friendly on-line help
- * A super-fast, high capacity hard drive that leaves others in its wake

Rochard RH800C 52Mb SCSI OK £329.00
Rochard RH800C RAM upgrade per Mb £42.50

MONITORS

PHILIPS CM8833/11 STEREO 14" COLOUR MONITOR.

Covered by a 12 month warranty includes connecting cable, green screen switch UK specifications

£229.99

PRINTERS

	Pin	Sheetfeeder	Price incl VAT
Citizen 120D	9		£97.50
Swift 9	9		£104.50
Swift 9X	9		£204.50
Swift 24E (including colour kit)			£295.00
Swift 24X	24		£204.50
124D	24		£104.50
Newlett-Packard Thinkjet			£320.00
Quietjet			£420.00
Deskjet 500 colour (3 year warranty)			£559.00
Deskjet (3 year warranty)			£385.00
Paintjet			£600.00
Commodore MPS1270			£129.99
Star LC20	9		£77.00
Star LC200	9 colour		£77.00
Star LC15	9		£175.00
Star LC24-200	24		£77.00
Star LC24-200	24 colour		£77.00
Canon BJ300			£159.00
Canon BJ10E			£175.00
Brother 1309	9		£65.00
Brother HR-20 Daisywheel			£184.00
			£154.95

BEST BUYS SAVE £££'s

DEAL 1

AMIGA A600 SINGLE DRIVE
4 GAMES WORTH £120, 0.5Mb RAM
EXPANSION, COMMODORE MPS1270
INK JET PRINTER, PRINTER STARTER PACK

RETAIL VALUE

£695

OUR PRICE ONLY

£595

DEAL 2

AS DEAL 1 BUT WITH NEW GOLDSTAR
AMIGA/TV MONITOR, includes Scart
Leads, Remote Control and 40
Channel TV

RETAIL VALUE

£895

OUR PRICE ONLY

£750

DEAL 3

AMIGA CDTV GAMES PACK
Includes - Amiga CDTV Player
SOFTWARE - Hutchinsons Encyclopaedia
Lemmings, Welcome disk,

RETAIL VALUE

£499.99

OUR PRICE ONLY

£399.99

FLOPPY DISKS

BRANDED DISKS

	5.25"	3M DATALIFE .TDK . VERBATIM DATAFILE PLUS . MITSUBISHI . ATHANA	3.5"
Boxes of 10			
5.25" DSDD 48tpi	£5.60	£5.30	£5.20
5.25" DSDD 96tpi	£8.90	£8.40	£8.10
5.25" DSHD 1.6Mb	£8.90	£8.40	£8.10
3.5" DSDD 135tpi 1Mb	£7.10	£6.80	£6.50
3.5" DSHD 2Mb	£12.00	£11.60	£10.35
3" Maxell CF2	£20.50	£19.50	£18.50

PRINTER PAPER

Size	Weight	Quantity	Price (incl VAT)
11" x 9.5" M'perf	60gm	2000	£17.95
11" x 9.5" M'perf	70gm	2000	£18.95
Exact A4 M'perf	70gm	2000	£23.50
11" x 14.5"	60gm	2000	£22.50
11" x 14.5"	70gm	2000	£24.50
A4 Square Cut	80gm	500	£6.50
A4 Copier paper	80gm	500	£3.25

FAX PAPER

Width	Length	Core	Box	Price box (incl VAT)
216mm	30m	13mm	6	£24.00
210mm	30m	13mm	6	£33.75
210mm	50m	25mm	6	£24.00
210mm	30m	13mm	6	£18.00
210mm	30m	25mm	6	£18.00
210mm	100m	25mm	6	£44.00
216mm	100m	25mm	6	£44.50

Please ask if your fax is not listed

DISK BOXES

	1-9	10+
10 Capacity 3.5"	£0.85	£0.75
10 Capacity 5.25"	£0.95	£0.85
25 Capacity 3.5"	£3.25	£2.75
40 Capacity 3.5"	£4.40	£3.95
80 Capacity 3.5"	£4.95	£4.55
100 Capacity 3.5"	£5.65	£5.25
50 Capacity 5.25"	£4.95	£4.55
100 Capacity 5.25"	£5.65	£5.25
80 Capacity (stackable)	£11.50	£9.40
200 Capacity (stackable)	£19.50	£17.95

DELIVERY CHARGES:
ALL PRICES INCLUDE
VAT & CARRIAGE

NO HIDDEN EXTRAS



FAX
0446
420404



PHONE
0446
421316

BULK DISKETTES

	5.25"	We only source bulk diskettes from major manufacturers, therefore we only supply quality performance products.						3.5"
		100% ERROR FREE (Prices include VAT)						
Price per disk		20	50	100	200	500	1000	
5.25" DSDD 48tpi	0.28	0.27	0.24	0.23	0.22	0.20		
5.25" DSDD 96tpi	0.30	0.29	0.27	0.26	0.25	0.25		
5.25" DSHD 1.6Mb	0.40	0.39	0.36	0.35	0.34	0.33		
3.5" DSDD 1Mb	0.45	0.43	0.41	0.39	0.38	0.34		
3.5" DSHD 2Mb	0.68	0.65	0.63	0.61	0.59	0.58		

ACCESSORIES

Keyboard Drawer	£14.99
14" Tilt and Swivel monitor stand	£9.99
Multifunction printer stand	£15.99
Universal printer stand	£3.99
Copyholder - adjustable	£14.50
Copyholder - gripclip	£3.99
14" Anti-glare screen filter	£9.99
Dust Covers - all types	from £3.50
ACCD PC workstation	£99.95
3.5" cleaning kit	£1.50
Mouse mat	£2.45
Mouse pocket	£1.95

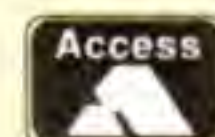
MICE & SCANNERS

ROCTEC AMIGA MOUSE rm3000	
Superbly styled, ergonomic design	
smooth precise operation!	
200dpi/500mm/sec	£13.95
OPTICAL MEGA MOUSE	
6' lead, 300 dpi	£29.95
NAKSHA SCANNER for Amiga 500	£115.00
DAATASCAN PROFESSIONAL A625 SCANNER	
2/3/400 dpi	£170.00
FANCY MOUSE (AMIGA)	£26.50
CORDLESS MOUSE	£57.95

JOYSTICKS

Maverick QS128F	£14.95
Flightgrip	£8.95
Python 1	£9.95
Quickshot Turbo	£9.50
Speedking Autofire	£10.50
Cheetah Bug	£13.95
Apache 1	£6.99
Tac 50	£12.99
Black Cruiser	£9.95
Python 3 (Sega)	£11.50
Zipstick	£11.95
Foot Pedal	£22.50

CREDIT CARD ORDERS 0446 421316



Payment by:
Cheque, Postal Order, Visa or
Access. Please do not send cash

E&OE all prices and manufacturers specifications are subject to change without notice. Please call before ordering

(three sliders, 0% to 100% values of red, green and blue) and the CMYK system (four sliders, 0% to 100% values of cyan, magenta, yellow and black). *PageStream* also supports the HSV, HLS and YIQ colour systems, should you require to use them.

Professional Page alone supports the Pantone colour system, which means that a colour reference

that there is only the one bitmapped graphics file format, IFF ILBM. Unless you've used a PC for graphics work you won't really understand how important this is. I spoke to a guy the other day who is writing a book on PC graphics file formats and conversion utilities; after just a couple of weeks work he'd unearthed about 80 different formats.

I'm telling you this so you

understand that it would be impractical for a desktop publishing program to support every graphics format ever invented, what we need is support for the most popular formats or the ability to convert alien formats to IFF ILBM.

PageStream's

graphics formats support is impressive. Anything you import into *PageStream* is handled by a support program called a 'driver', so in order to recognise a new format of file all that needs to be written is a driver for it. This means that Soft-Logik can update and improve *PageStream* much more easily than if it had to re-

while graphics in these formats can be imported into *PageStream* and displayed on the screen, you cannot alter them in any way.

But there is one type of graphic that can be edited after importing, a structured drawing. *PageStream* will enable you to import and edit *Professional Draw* clips, *ProVector* (DR2D) drawings and Adobe *Illustrator* drawings. And while 'ungrouping' and editing such graphics in *PageStream* gives you a by-the-seat-of-the-pants feeling, it's an impressive feature. The GEM Metafile structured drawing format is also supported, not sure if you can edit these though as I haven't been able to find a GEM drawing to test.

Lastly, *PageStream* can import Encapsulated PostScript (EPS) graphics, and if these files include PICT or TIFF headers a bitmap representation can be displayed on-screen.

You don't need me to tell you that this is an impressive list of graphics formats. But there's a problem with the bitmaps - memory. *PageStream* insists on importing and storing the whole of the bitmap in memory, and if you use the same graphic more than once, it loads it and stores it in memory more than once.

So what? Well, for 32 colour or HAM IFF ILBMs this isn't a great problem, and 256 colour TIFFs and GIFs are fine if you have a few

megabytes, but if you want to get really serious and use 24-bit IFF ILBMs you've got no chance unless you have a seriously expanded Amiga - and I mean *tens of megabytes* of memory. You see, even a smallish 24-bit scan at 300

dots per inch takes up about 2Mb or 3Mb of disk space. But this is in a compressed format, de-compressed it can double in size, or more.

So for *PageStream* to import such a graphic it requires enough memory, after the graphic has de-compressed, to store it, and then a bit more to display a black-and-white representation on-screen.

With 4-6Mb of memory you've got no chance, with 9Mb you might get away with one 24-bit picture and a bit of text.

There's a less memory-hungry way to do it - read the picture in a little bit at a time, and as you do so

create (say) a four-colour version of it in memory for screen display purposes, but leave the picture itself on disk. After all, the desktop publishing program only needs the real colour information at printing time, at which point it can read it from disk.

There are further advantages to this method which affect the speed at which you can operate during the

"If you want to use 24-bit IFF ILBMs, you've got no chance unless you've got a seriously expanded Amiga."

page design process.

This 'leave it on the disk' technique is the one *Professional Page* employs and means that dozens of large 24-bit pictures can be included in a single document without having to own a 64Mb expansion board. I have 7Mb in my B2000 and have managed 20 24-bit pictures easily.

The trouble with *Professional Page* is that it supports only IFF ILBM bitmaps (from two-colour, up to 24-bit). If you want to use an alien bitmap format it will have to be converted to IFF ILBM first. This means you need *Art Department Professional*, which is arguably the most impressive piece of software ever written for the Amiga. It's much, much more than a 'graphics format converter', and is a perfect DTP companion to *Professional Page*. But it costs money, of course, and you need at least 4Mb of memory in order to start getting the best out of it.

As well as IFF ILBM bitmaps *Professional Page* can import and display *Professional Draw* structured clips and *Aegis Draw* structured drawings. Although these can be re-scaled, they cannot be edited; for that you'll need *Professional Draw* or *Aegis Draw*. When *Professional Draw 3* is released there will be a hotlink between it and *Professional Page*, which will in effect add a complete complement of structured drawing tools to *Professional Page's* repertoire at the touch of a button, in the same way that the hotlink to the Article Editor gives *Professional Page* a full set of word processing features.

EPS files can be imported and



Any text in *PageStream* can be filled with any pattern and any colour... you can even make up your own if the ones provided don't suit

book can be used so that you, or your client, can select the exact colours required, which will be printed with an ink of that exact colour rather than one created by the sometimes frustratingly inexact CMYK separation process. While this involves the cost of a separate printing plate for each Pantone colour used, it does mean that you get exactly the colour you ask for.

However for the most part you should find CMYK plenty good enough for the majority of colour work, and all three packages support the selection of colours using this system adequately.

RATINGS • RATINGS • RATINGS

Text importing and editing

<i>PageStream</i>	☆☆☆
<i>Professional Page</i>	☆☆☆☆
Saxon Publisher	☆☆

Font support

<i>PageStream</i>	☆☆☆
<i>Professional Page</i>	☆☆
Saxon Publisher	☆☆☆☆

Style Tags

<i>PageStream</i>	☆
<i>Professional Page</i>	☆☆☆☆
Saxon Publisher	☆☆☆☆

PICTURES

A picture is worth a thousand words, OK, it's a cliché, but before it became a cliché it was a fact.

Now, we are lucky on the Amiga



PageStream now imports and enables you to edit structured drawings created with Adobe *Illustrator*

write the whole program.

PageStream supports IFF ILBM from two-colours, through HAM, right up to 16.7 million colours (24-bit), plus seven alien bitmap formats - IMG, TIFF, MacPaint, GIF, Degas, PCX, NEO and TNY. There's no space in this article to explain what these names and letters mean, it's enough to know that they are popular graphics formats on the PC, Mac and Atari ST.

You should also understand that

printed to PostScript devices, but not displayed on-screen. This is something Gold Disk needs to work on.

I've left *Saxon Publisher* till last because it's almost a carbon copy of *Professional Page* with respect to the way it handles graphics.

The only bitmap format supported is IFF ILBM, up to 24-bit. Like *Professional Page*, *Saxon Publisher* leaves the actual bitmap file on disk and creates a quick four-colour representation for screen display purposes.

Instead of *Professional Draw* clips and *Aegis Draw* drawings, *Saxon Publisher* supports just the DR2D two-dimensional drawing format created by *ProVector*. EPS files can be imported, and if they have IFF headers (known as AEPS, which can be created with the supplied *SaxonScript Professional* PostScript interpreter) a bitmapped representation can be displayed on-screen.

SaxonScript will also let you convert any PostScript page, or portion of a PostScript page, into ILBM, DR2D or EPS format, the first two of which can be imported into an art or drawing package if you want to make changes. This enables you, for example, to steal, sorry, borrow graphics from somebody else's PostScript files, including those that include 24-bit pictures. (Dunnalf take a long time though.)

RATINGS • RATINGS • RATINGS

Graphics import/handling

PageStream	☆☆☆
Professional Page	☆☆☆☆
Saxon Publisher	☆☆☆☆

DESIGN

Now this is the really subjective bit. Design. What one designer thinks is an absolute necessity, other designers will shrug their shoulders at, while there are features some designers use all the time which others have never heard of.

It's impossible in an article of this size to describe and discuss the design features of all three packages, so instead I'm going to concentrate on the bad points, the quirks of each package that will restrict the flow of the old creative juices.

The concept behind designing pages is simple – you draw some boxes on the page, you put some text or pictures into those boxes, then you jiggle them around a bit. And that, basically, is how all three packages work.

It's the 'jiggling around' which often thwarts newcomers to DTP, they expect the program to do it for them.

And to a certain extent the program can do it for you. For instance if you want your text to be in three snaking columns (newspaper style) of equal width, with the same space or 'gutter' between them, then you shouldn't have to calculate the widths and positions, draw and position the columns one by one, you should be able to tell the program the width of the page, the number of

"PageStream gives you the gun, it's up to you whether you pull the trigger."

columns you want, the width of the gutters, and let the program draw them for you.

This was the first thing that struck me about *Saxon Publisher*, although it can create automatic column 'guides' on a page, you have to draw the real boxes yourself, over the top of these dotted lines.

Then I spent half a day reading the manual and playing with the program trying to find out how to group a number of boxes together in order to move them so that their overall position changed on the page but their positions relative to each other remained the same. What a waste of half a day that was.

Saxon Publisher cannot group boxes together.

Neither can it link boxes automatically. I mean, say your document is a manual

spreading over 20 pages, each with three columns of text on it – 60 columns in all.

Saxon Publisher insists that you click on each box in the 'chain' one at a time in order to make the text flow into it from the previous column.

The three features mentioned above, I consider to be part of the basic requirements of any DTP package.

Saxon Publisher has some extremely advanced design features – like the ability to draw boxes of any shape and fill them with text or pictures, and like its 'textures' that provide easy ways to achieve radial and gradient fills – but I'm not sure how Saxon Industries can expect us to take *Saxon Publisher* seriously

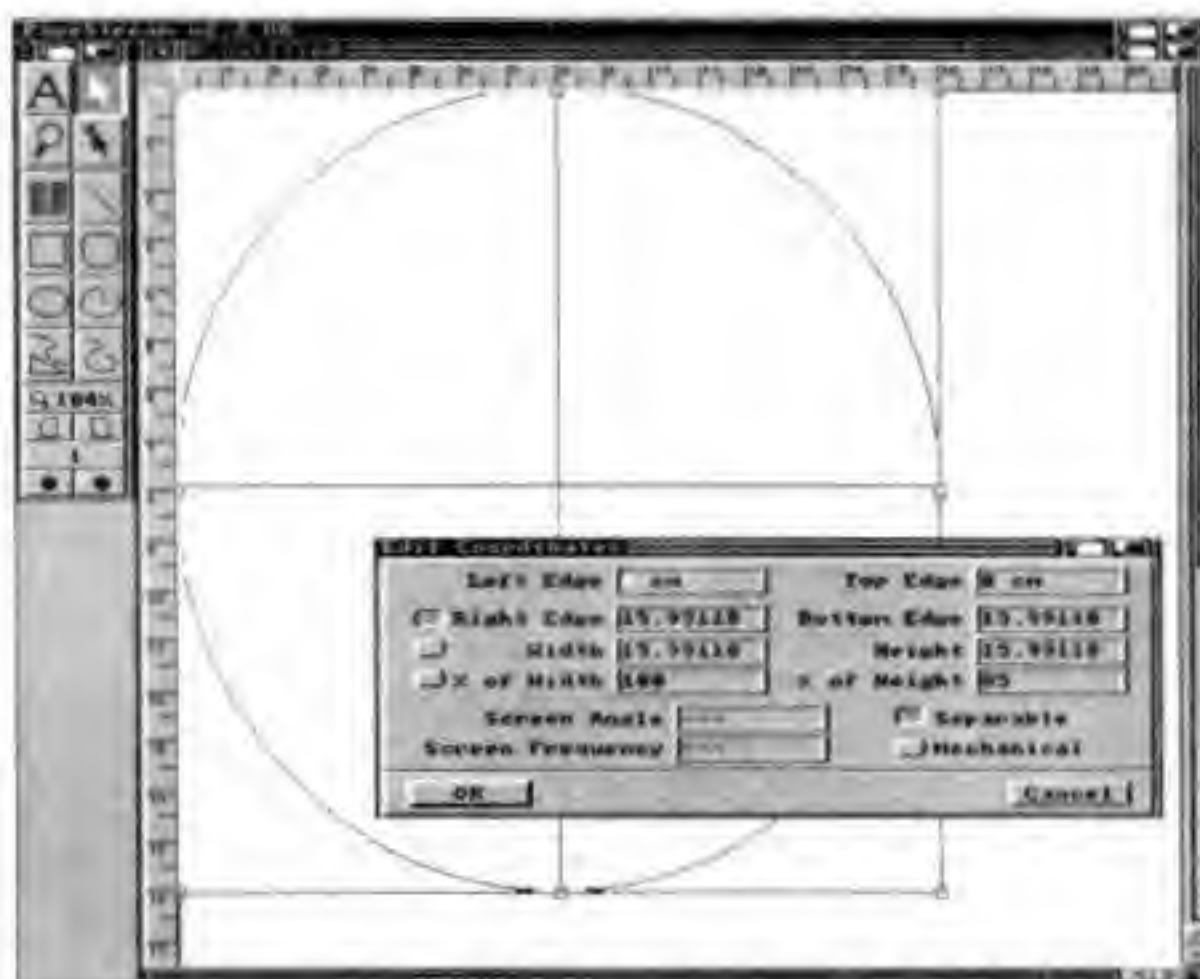
when it lacks basic design requirements.

The way it treats rotated boxes is confusing. For example, import a picture into a box and give the box a frame. Now rotate the box, and it is the contents which gets rotated, leaving the frame upright. If you want a rotated frame around your rotated graphic you'll have to draw and position it by hand, an impossible task to do accurately given the limitations of screen display resolution.

My pet hate is the system it uses for placing text and pictures on the page.

After importing a file *Saxon Publisher* puts its filename into a list in the toolbox, after

which you click on a box and then click on the filename to place that file into that box. But it only recognises and displays the first 10 characters of the filename. So if you've got two files called 'Great-LongName1.Txt' and 'Great-Long-Name2.Txt', upon attempting to import the second file the program complains that 'GREATLONGN'



To get a bitmap to print at its correct aspect ratio from PageStream, its height must be set at 85% of its width

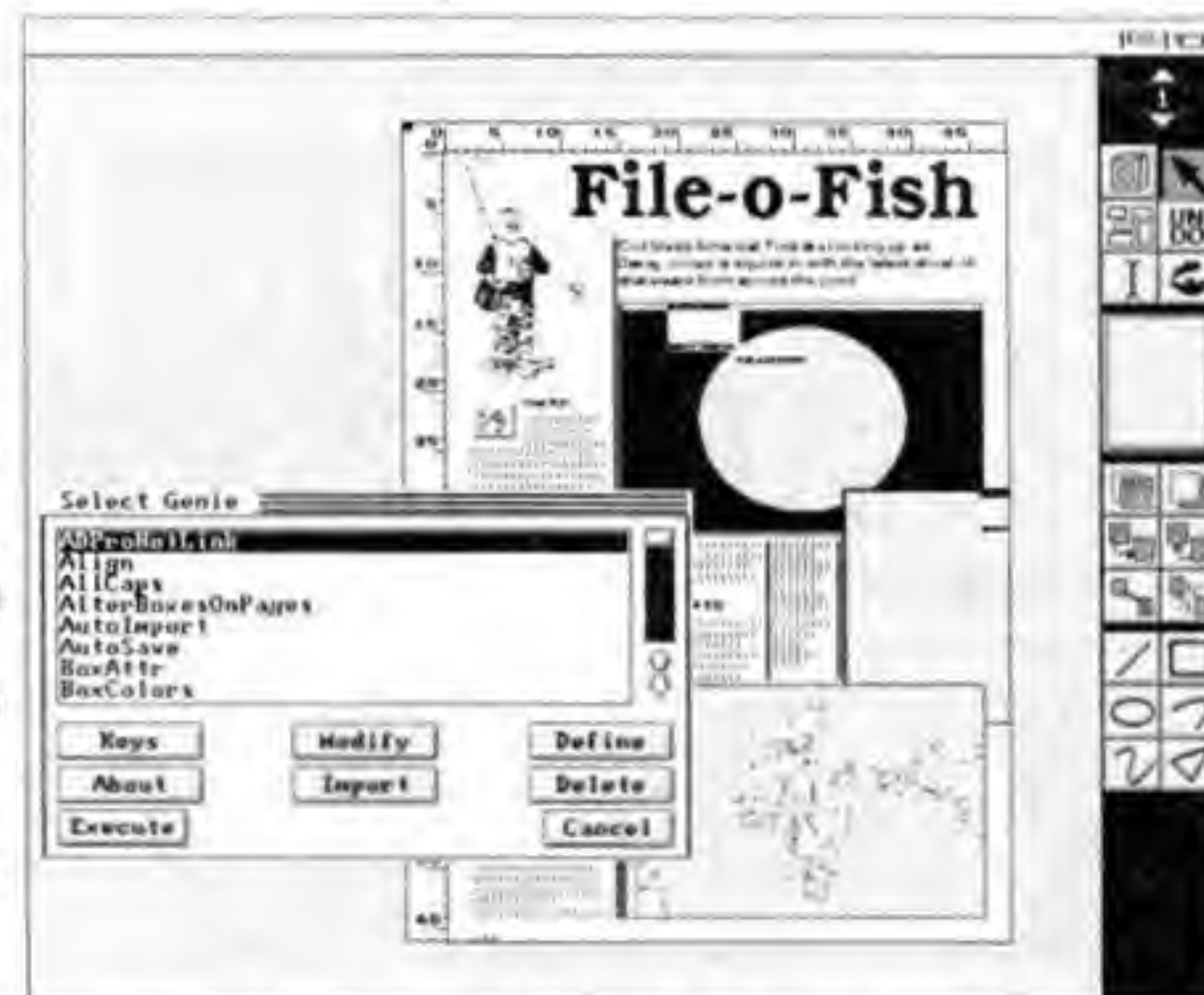
already exists and asks you to give the second file a new name. Bah!

As if that's not bad enough, if your filenames are something like 'txt.plop.dumdum' and 'txt.plop.doodah', the fullstops appear to throw the system and the toolbox ends up with two names in the list that read 'TXT.PLOP.D'. Which is which? There is no way of telling without putting the file into a box on the page and having a look.

So with *Saxon Publisher* you

have to stick to giving your text and picture files a maximum filename of 10 characters. I can't abide software which imposes working conditions.

Saxon Publisher certainly gives the design freedom we require, it's fast, and it's stable when asked to do a big job. But despite the 'advanced' features it proclaims, it lacks real power.



For the serious desktop publisher, a new Genie hotlink to ADPro provides Professional Page with image processing facilities

FREEDOM OF EXPRESSION

Moving on to *PageStream*, this program gives you a great deal of design freedom. The basic DTP requirements are all there, and of the three systems *PageStream*'s is probably the easiest to get accustomed to.

One feature which DTP newcomers absolutely adore is the ability to type text directly on to the page, and then pull at the handles around that text to stretch it to fill a hole on the page.

ASYMMETRICAL SCALING

This method of stretching the text is known as 'asymmetrical font scaling' and is generally frowned upon in the publishing world because it enables you to turn a beautifully designed font into an ugly unreadable one. But that's *PageStream* for you. It gives you the gun, it's up to you whether you pull the trigger or not.

PageStream's big problem is that it has never been a fast program, and it has always felt a bit wobbly when asked to jump through hoops. Rescaling a greyscale or coloured bitmap, for instance, can take a minute or more to complete, and importing a very large bitmap – a 24-bit one for instance – almost always ends in tears.

And it gets its aspect ratios wrong. An ordinary 640 by 512 pixel



Gold Disk's new Page Genie system means that whole documents can be laid out by answering a few simple questions



hi-res graphic, for example, has an aspect ratio of 5:4 – or to put it another way, its height is 80 per cent of its width. However, when you import a bitmap into PageStream it scales it... well, if a hi-res graphic is scaled to be 10in wide, which works out to be a scale of 102% according to PageStream, then, depending on how its system works, 102% high should be exactly 8in or exactly 10in. (Phew! Still with me?) But PageStream says 102% high is 9.482915in.

I mean it's not even square at 102% by 102%, so 100% wide by 80% high is not the correct aspect ratio either.

In actual fact, to scale a bitmap to its correct aspect ratio in version 2.2 of PageStream you must have it 85 per cent high as it is wide. (It doesn't tell you this in the manual, I had to find out by trial and error.)

ADDING IT ALL UP

So if your graphic is 3.5in wide, how high must you make it to keep the aspect ratio correct?

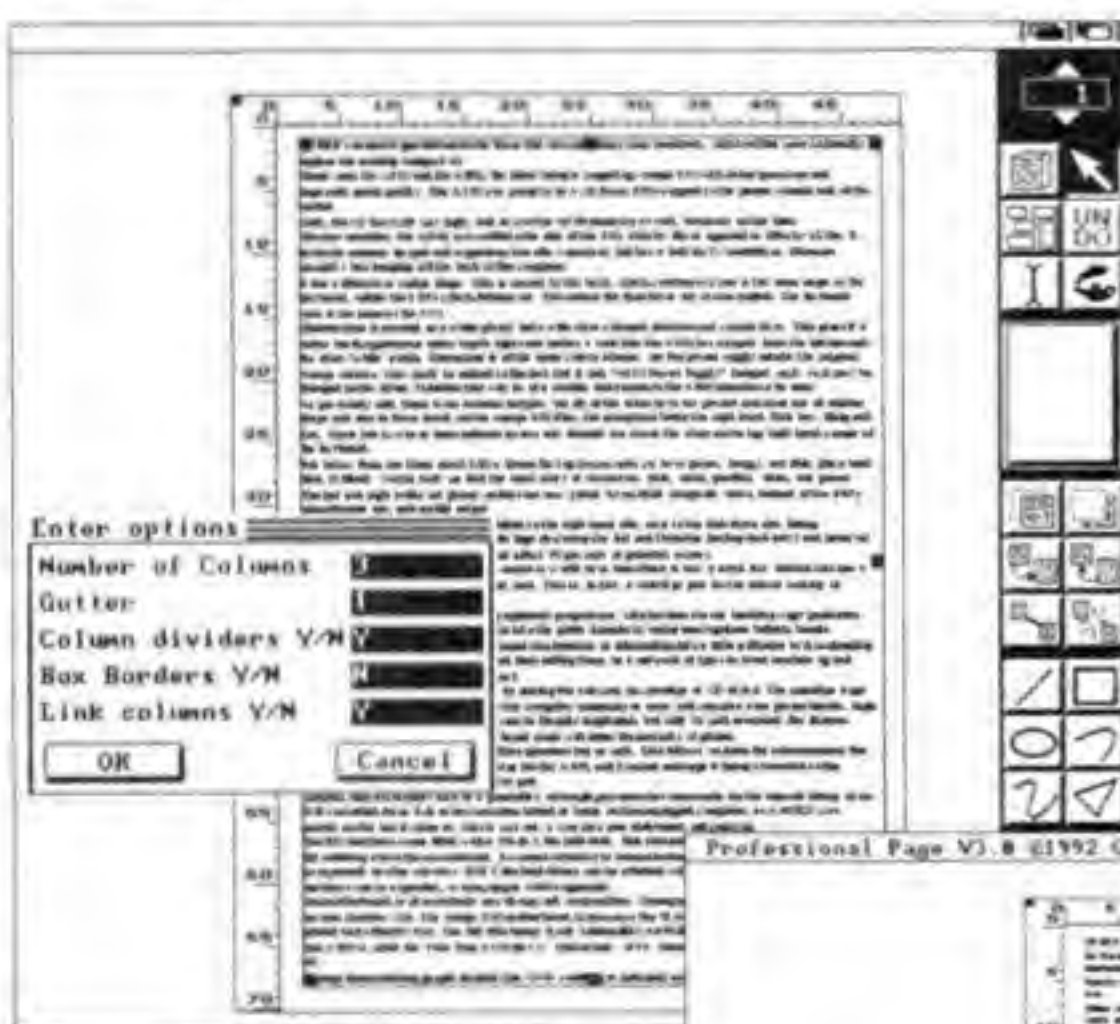
Whatever the answer, it involves you having to calculate it yourself, and yet there you are with a flaming computer in front of you and the program you're running can't do it for you.

Do not underestimate the importance of this bitmap scaling problem. Without the correct aspect ratio, circles will not print out as circles, but as squashed or elongated ellipses.

On top of this, PageStream's printed output of rotated, twisted or slanted bitmaps is diabolical, nowhere near good enough for professional quality work.

All in all, PageStream's bitmap graphics features leave an awful lot to be desired. There's no doubting that PageStream has incredible power, but to increase its speed it sometimes forsakes accuracy, and often ends up biting off far

more than it can chew. You cannot ask for more freedom than PageStream gives you, and I would certainly recommend it to home users and semi-professionals, but I cannot in all honesty recommend it for professional or 'industrial' use, where fast and top quality results are expected.



The power of Professional Page's Function Genies is phenomenal. Here I have created one wide box (above), imported text into it and then selected a Genie which will automatically turn it into as many columns as I want, complete with lines in the gutter (right)

GENIES LIGHT UP PRO PAGE

Professional Page's design features are now as comprehensive as PageStream's, thanks to the new 'Genie' system. You must have read about these, and know that they are basically AReXX scripts that perform a collection of functions at the press of a button.

It is difficult to pick on Professional Page because there are not many things which it does badly. In pre-Genie days there were stacks of things PageStream could do that Professional Page couldn't, but the Genies have changed all that, and, indeed, turned the tables.

Professional Page can't slant or twist bitmap graphics, although it can rotate them, and re-scale them of course. Accuracy is excellent, the speed of bitmap rotation, re-scaling and subsequent screen refresh is second only to Saxon Publisher, but Professional Page rotates the

BEST BUY • BEST BUY • BEST BUY

PROFESSIONAL PAGE

PageStream is powerful, albeit a bit slow and rather unstable; Saxon Publisher is the fastest of the three, stable, powerful on text styles but weak on design basics; Professional Page is fast, stable, and, thanks to the Genies and the hotlinks to the Article Editor and Professional Draw 3 (when it is released), it is the most powerful DTP package for the Amiga by quite some way.

'bounding box' as well, so frames around rotated graphics are not a problem.

One drawback is that Professional Page won't let you import text or graphics into anything but rectangular bounding boxes, PageStream can't do this either, but Saxon Publisher can.

Honestly, I'm sitting here racking my brain trying to find something else about Professional Page to complain about, and all I can think of is the fact that to use version 3 properly you need lots of memory (6Mb or more I'd say), and the fact that it no longer runs from floppies so a hard drive is required. But these are hardly criticisms, they're akin to saying you can't run a jet

CONCLUSION

Despite the comparatively recent emergence of Saxon Publisher, the battle for desktop publishing supremacy on the Amiga is still between PageStream and Professional Page.

It's nip and tuck all the way, with Gold Disk and Soft-Logik leapfrogging each other with upgrades and enhancements, although that can only be to the advantage of all of us DTP-ers out here.

If you want a condensed version of my verdict on these three packages, take a glance at the above best buy box for a summary.

To conclude, it has to be said that the latest version of PageStream is basically a 'prettified' version of its predecessor, with a few bug fixes and a slight improvement in operating speed, whereas version 3.0 of Professional Page is a significant advance from version 2.1, with new features and the ability to automate many processes using the Genie system. **AS**

SHOPPING LIST

PageStream 2.2 £199
by Soft-Logik Publishing Corporation,
11131F South Towne Square,
St Louis, MO, 63123 USA
☎ 0101 800 829 8608

Professional Page 3.0 £249
by Gold Disk Inc, 5155 Spectrum Way,
Unit 5, Mississauga, Ontario,
Canada L4W 5A1
☎ 0101 416 602 4000

Distributed in the UK by:
HB Marketing, Unit 3, Poyle 14,
Newlands Drive, Colnbrook SL3 0DX
☎ 0753 686000

Saxon Publisher 1.2 £249.95
by Saxon Industries, 14 Rockcross Gdns,
Nepean, Ontario, Canada K2G 5A8
☎ 0101 613 228 8043

Distributed in the UK by:
Surface UK Ltd, 5 Rockware Avenue,
Greenford,
Middlesex UB6 0AA
☎ 081 8130470

plane on 4-Star petrol.

Given enough memory, Professional Page is entirely stable, faster than PageStream and just a tad slower than Saxon Publisher, gives you incredible freedom and power on its own, but in tandem with Professional Draw there's not a lot you won't be able to do.

RATINGS • RATINGS • RATINGS

Design features	
PageStream	☆☆☆
Professional Page	☆☆☆☆
Saxon Publisher	☆



AMERICA'S LARGEST SUPPLIER OF AMIGA CUSTOM CHIPS + UPGRADES

Prices
now include
VAT, Customs
and duty if any

8372A (PAL) 1 Meg Agnus	£31.30	6570-036 keyboard control chip	£8.75
8375 (PAL) 2 Meg Agnus	£39.50	A500 original P/S, 220 volts (no plug)	£40.25
1.3 Kickstart ROM	£19.70	A2000 original P/S, 220 volts	£64.20
A500 UK Keyboard-factory new (#312502-01)	£35.60	A501 original new 512K module	£17.50
5719 Gary	£10.44	A500 internal floppy drive	£46.00
6302 Denise 1 bright	£13.90	Panasonic 32k printer buffer chip	£9.00
1 x 4/80 Static Column Zip	£15.60	Citizen 32k printer buffer chip	£12.40
8520A CIA (2MHz) Great price	£6.35	GVP-SIMM 32-4Mb/60	£120.00
A500 PC Motherboard-PAL, populated & tested (new low price) Rev. 3	£58.60		

UPGRADE YOUR A500 TO THE A500 PLUS - 8373 SUPER DENISE - £21.25

Advanced Amiga Analyser: Sophisticated but easy to use. Checks status of all data transmissions/signals, disk drive, ports, buffer chips, alignment, joystick + mouse. Checks status of read/write errors and tells what chips are bad. (hardware and software) A must for every Amiga service centre.	£42.50
McCoy PLCC: (Burny clone) Agnus chip puller (sold by CBM for £32)	£9.50
Amiga Diagnostician: Diagnose up to 28 common problems. Comes with diagnostic software and booklet. Save time & money by locating faulty chips yourself	£9.86
The Final Test: Diagnostic diskette tests keyboard, display, graphics, Workbench, sound, timing, realtime clock, RAM, etc. (12 diagnostic programs in all)	£6.95
MegaChip 2000 by DKB: Upgrade your A500/A1500/A2000 to 2Mb of chip RAM. Includes 2 meg Agnus, chip puller & "Final Test" diagnostic diskette (no soldering)	£170.00
Buy the MegaChip from us and we'll give you the new Super Denise for	£17.00
SwitchIt by Global Upgrades Inc. Electronic ROM selector switch for 1.3 or 2.0. Makes all your software compatible. Keyboard or mouse controlled. Does not overlap the 68000 - allows for accelerator (2.0 compatible) very popular in the U.S. (includes dual-tone speaker for confirmation)	£19.50
Same as above but with 2.04 ROM installed	£39.00

*2.04 Upgrade Kit (PAL ed.): Contains ROM, 1,000 page manual and diskettes	£50.75
*2.04 Upgrade ROM only (PAL): No manual or diskettes. Ideal for multi-computer owners, schools, businesses, etc.	£22.00

AdRAM 540 for A500 by ICD: Add up to 4 megs of RAM with battery backup internally in your A500. 1 Meg/2 Megs (install up to 4 megs)	£74.20/£95.15
AdSpeed by ICD: Best accelerator in its price range	£94.50
Flicker Free Video by ICD: Eliminates interface flicker (new version)	£132.50
Flicker Fixer by Microway (PAL)	£130.50

DO NOT FEAR!

Buying directly from the U.S. with your credit card offers you the same protection as it does in the U.K. with the added benefit of saving lots of money. Deal directly with North America's largest distributor of custom Commodore & Amiga parts and chips. The Grapevine Group has been successfully servicing the U.K. and the Continent for 13 years. All our parts and chips are new and guaranteed for 90 days.

DEALERS - SEND YOUR LETTERHEAD FOR SPECIAL PRICING

PRICES JUST REDUCED

THE GRAPEVINE GROUP INC.
3 Chestnut Street, Suffern, New York 10901 U.S.A.
International Fax: 0101-914-357-6243
Customer Order Line: 0101-914-357-2424
Telephone Hours: 1pm to 11pm Mon-Fri British time

Prices subject to change. **International Orders:** If your order is over £40 send or fax front of credit card. **Air Parcel Charges:** All chips - £5.36 Keyboard & PC Board - £8.40 2.0 Kit - £22.62

Prices
now include
VAT, Customs
and duty if any

SECTOR SOFTWARE • SECTOR SOFTWARE • SECTOR SOFTWARE

TOUCH TYPIST

£14

Touch Typist is a very fast fully featured typing tutor for any Amiga, this program contains more features than we could list in the whole advert. Demo mode, Lesson editor, various graph options, 402 lessons supplied, high quality graphics, easy to use, printout of a Certificate or Diploma as proof of your ability. Suitable for beginners or advanced typists. (See review in last month's Amiga Shopper page 37). **Touch Typist is almost over qualified. Tremendous value for money. A fine piece of software. To improve your Typing skills look no further than Touch Typist.**

Amiga Shopper July 1992.

STD INDEX

£14

STD Index is Produced under licence to British Telecom and is a very fast alternative to using Directory Enquiries to obtain dialling code information, the datafile contains over 6500 UK dialling codes and over 2000 worldwide entries. Now you can check the location of phone numbers used in adverts or the phone numbers on your itemised phone bill. Save ~~£££~~ compared with using directory enquires or ringing numbers in the Outer Hebrides thinking they are round the corner. **A fast and functional product, STD Index could save you hundreds of pounds.**

CU Amiga October 1991

AMIGA SHOPPER INDEX

£12

Lost that article or letter in your Amiga Shopper magazine? Look no further, Amiga Shopper Index will provide answers in an instant, over 1100 reviews, articles, letters news items are all cross referenced in a self loading database program. Now you can turn your pile of magazines into a complete reference work. Regular updates available. Shows title, summary of content, author, issue no, date, and page number. The speed of Shopper index has to be seen to be believed.

AMIGA TO Z88 LINK

£25

Use the Cambridge Z88 portable computer as a portable Amiga terminal. Write letters or programs on the move and use Amiga - Z88 link to transfer the data to and from your Amiga, price includes software and cable.

AMIGA TO TANDY WP2 LINK

£25

Similar to the Amiga-Z88 link but will converse with the Tandy WP2 portable wordprocessor for wordprocessing on the move.

WORDSMITH

£14

Crossword fanatics, puzzle enthusiasts and word freaks can use Wordsmith as an aid to solving anagrams, crosswords, and word puzzles. Fast output to screen or printer. Ideal tool for children to explore words, eg. finding rhyming words etc.

Send for our catalogue of these and other programs written by Sector Software.

All our software is fully compatible with the A500+ and A600 machines.

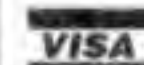
Please make cheques payable to:

SECTOR SOFTWARE (Est. 1985)

39 Wray Crescent, Ulms Walton, Leyland, Lancashire PR5 3NH

Tel: 0772 452414. Prices include VAT

Please add £2 per order postage and packing.



AUTHORISED DEALER FOR * AMIGA * STAR *

AMIGA (UK MODELS ONLY)

Amiga 1500 PLUS with KICKSTART 2/WB 2 & S/WARE	£539.00
Amiga 1500 DOUBLE with 1.3 and 2.04 ROMs Mouse Switched	£579.00
Supra RAM 8Mb Board for A2000 Pop 2/4/6/8Mb	£149/£209/£269/£329.00
Supra RAM 500RX 8Mb for A1000/A500/Plus Pop 2/4/8Mb	£149/£239/£419.00
A2386 20MHz AT Bridgeboard (NEW)	£429.00

PRINTERS

Star LC-20	All printers	£135.00
Star LC-200 Colour	Include a free parallel cable	£195.00
Star LC24-20		£199.00
Star LC24-200		£219.00
Star LC24-200 Colour		£269.00
Star XB24-200 24 pin Colour		£398.33
Star StarJet SJ-48 Bubble Jet	Near Laser Quality!	£235.00

MONITORS

Commodore 1085S-D2 Stereo 0.52mm Dot Pitch	£219.00
Commodore 1084S-D2 Stereo 0.42mm Dot Pitch (NEW)	£249.00
Philips 8833-II Stereo + F19 and On-site Maintenance 0.42mm DP	£229.00

DISK DRIVES

GVP Series II 52Mb for A500	£349.00
GVP A530 52Mb Drive + 40MHz 030 Accel + 1Mb 32-bit RAM	£689.00
Rocite Super Slim Amiga Ext. 3.5"	p&p £2 £59.95
A2000 Internal 3.5"	p&p £2 £59.95
A500 Replacement Internal 3.5"	p&p £2 £59.95

MISCELLANEOUS

AlfaScan Plus Hand Scanner 256 Grey Scale	p&p £2 £139.00
AlfaScan Plus with OCR software	p&p £2 £249.00
Commodore A2320 Display Enhancer	p&p £2 £219.00
KCS PC Board for A500 inc MSDOS 4.01	p&p £2 £199.00
KCS PC Board for A500 without MSDOS	p&p £2 £179.00
KCS A2000 Adapter	p&p £1 £69.95
Official Commodore Release 2 Kickstart/WB Upgrade	p&p £2 £97.00
Alfa-Data Mouse with Mat and House	p&p £1 £19.95

CHIPS

Kickstart V2.04 ROM for A500/2000	free p&p £35.00
Kickstart V1.3 ROM for A500/2000	free p&p £25.00
Super Denise 8373 (For New Graphics Modes)	free p&p £30.00
1Mb Fat Agnus 8372	free p&p £35.00
CIA Chip 8520	free p&p £13.00
1Mb SIMMS for GVP/Rocite Drives	free p&p £29.00
2Mb DIPS for SupraRAM 2000	free p&p £60.00

ALL PRICES INCLUDE 17.5% VAT. CARRIAGE £7

Prices subject to change without notice. E. & O. E.

LIMITED OFFER ON AMIGA 3000

Special Low Price £2239 inc VAT

25MHz 68030 CPU with 52Mb Drive

2Mb Chip RAM + 4Mb Fast RAM

Offer includes Deluxe Paint 4, Scala & Amiga Vision
(Price includes On-site Maintenance)

The New Amiga 600

A600 with game & DPaint III £359

A600 with 20Mb Hard Drive £459

(Prices include On-site Maintenance)

Supra WordSync 2000 Drives

52Mb Quantum LPS 11mS with 64Kb Cache £239

105Mb Quantum LPS 11mS with 64Kb Cache £349

The WordSync/Quantum combination is one of the fastest drives available for the Amiga.

Commodore 1960 Multiscan Monitor £435

0.28mm Dot Pitch Max Res 1024x768

Suitable for A500/A1500 ALL Amiga Colour Modes

Delta Pi ROM Sharer £19.99

Simply use the left button to select ROM.

Analogue Joystick Adapter £9.95

Enables use of PC joystick on Amiga

Kickstart 2.04 ROM £35 Kickstart 1.3 ROM £25 (Includes P&P)

Delta Pi Software Ltd

8 Ruswarp Lane, WHITBY, N. Yorks YO21 1ND

TEL/FAX: 0947 600065 (9am - 7pm)

VISA

MasterCard

If you're serious about DTP then you should check out two new arrivals on the Amiga scene – a 24-bit colour flatbed scanner from Epson and a PostScript-compatible laser printer from Star. Cliff Ramshaw hooks them up to his A2000 and dives in at the high-end...

PRO-DTP

With the Epson colour scanner and Star laser printer you have two devices which make it possible to import high quality images into Amiga desktop publishing software, manipulate and output them at an equally high resolution. So, running software such as *Art Department Professional* and *Professional Page* or *PageStream*, it's possible not only to produce top-notch grey scale print-outs but also proof colour

work which can be sent to any PostScript typesetting bureau for final printing.

But before you jump at the chance to enter the world of pro DTP there's just a few questions you might like answering – not least the price. With the scanner at £1300 and the laser at around £1000, quality doesn't come cheap – but then it never did, did it?

Let's take a look at the input side of things first of all...

FIRST IMPRESSIONS...

What a superb piece of equipment this scanner is! In all of my days of reviewing, never have I come across an item of hardware so easy to set up, use, and which produces such good results.

Q WHAT'S SO SPECIAL ABOUT IT?

A The Epson GT 6000 is a full colour, A4 flatbed scanner. This means that it can scan pictures up to 210x297 mm in size, in either straight black and white, 256 grey scales, or 16.7 million colours. It also means that you don't have to bother dragging a scanning head across your original image.

All you have to do is plonk the picture to be scanned on a tray, close the scanner's lid and let the machine get on with it.

Before you get too excited, remember that a full colour A4 scan at the maximum resolution takes up about 142Mb.

Q WHAT'S THE BEST RESOLUTION TO SCAN IMAGES?

A Nineteen different resolutions are available with the scanner, ranging from 50 to 600 dots per inch. Choosing a resolution always involves a trade off between detail required and space available. It also depends on the resolution of your output device and the scale at which the scanned image will be output. For instance, if your printer has a resolution of 300

EPSON GT 6000 SCANNER

dots per inch and you intend to print a picture in a box which measures 2 inches square, then if the original image is 4 inches square there is no point in scanning at a resolution higher than 150 dpi.

There are other things to watch out for, too, such as the resolution at which your original images have been printed. Magazine pictures are printed using a process

"Choosing a resolution involves a trade off between detail required and space available."

called screening. Dots of black, yellow, magenta and cyan are placed in close patterns to reproduce a full range of colours. Scan a magazine picture too closely and this screening effect will be quite noticeable.

Yet this, and other potential

problems, are dealt with in a detailed way by Epson's excellent manual. Not only does it explain the basics of setting up and using the scanner, it contains plenty of handy tips on how best to scan a number of different types of images.

Q HOW EASY IS IT TO CONTROL THE SCANNER?

A Well that's the thing that makes this package such a boon. The scanner controller



JARGON BUSTING • JARGON BUSTING

Bitmap – A representation of an image in the form of a grid of dots which can be either black or white. The greater the number of dots per inch, the more the image looks smoothly drawn and the more difficult it is to discern that it is made up of dots.

Escape codes – A means of sending a printer formatting instructions embedded in an ASCII text file.

Font – The group of letters, numbers and special characters that comprise one variation of typeface, eg: 12pt Times, 12pt Times Bold, 12pt Times Italic. Sometimes (mistakenly) used in desktop publishing to refer to a type family.

Point – A standard unit of typesetting measurement equal to 1/12th of a pica, precisely 1/72nd of an inch in desktop publishing (approximately in conventional printing). The height of a font – the distance from the top of the highest ascender to the bottom of the lowest descender – is normally expressed in points.

Printer driver – A program that sits inbetween any applications program producing output and the printer. It converts any codes describing text and graphics format into a form suitable for a specific printer.

Typeface – All sizes of a particular type family and style, eg: Times Italic, Helvetica Italic, Courier Bold.



Here is the final scan of last month's *Amiga Shopper* cover, in all its full 24-bit, 16.7 million colour glory. You need an awful lot of disk space to store this kind of image: not only is it 24-bit, but it's A4 in size, taking up over 1.2Mb – and that's for a low resolution scan! Doubling the scanning resolution quadruples the memory requirements

giving different levels of control over the installation procedure.

There's even the chance to run through a trial install so you can see how it works without actually writing anything to disk. It's things like this that let you know you're using a truly professional piece of software.

stages: 'Preview' and 'Fine Scan'. The preview mode scans at a low resolution monochrome, using halftoning to achieve grey scales. Clicking on the sides of a rectangular border with the mouse enables you to select precisely the area of the image you are interested in. Click on Scan when you've done so, then click on Accept if you're happy with what you've chosen. At any time, you can step through each of the available resolutions and the software will tell you precisely how much memory the scanned image would take up in monochrome, grey scale and full colour.

Once you have everything set up and have clicked on Accept, it's time to scan for real. This screen operates in much the same manner as the preview one. You select whether you want a monochrome, grey scale or full colour image, and which resolution you require. You will be told how much memory this will take up; if there isn't enough the figure will be displayed in black (irrelevant if you are scanning direct to disk). You may also select the scanner's zoom option, which ranges from 50 to 200 percent, although ASDG recommends you always scan at 100 percent and use *Art Department* to zoom if you need to do so, since it is capable of producing more intelligent results.

Q CAN YOU ALTER THE IMAGE AS IT'S BEING IMPORTED?

A Yes. There are three further options which may be selected. The first is

either a monitor or one of several types of printer. Selecting colour correction will do the same thing for the relationship between colours.

After that, a click on the Accept button sets things in motion. If you're scanning direct to disk, first enter a filename in a Save requester.

As with the hardware, the manual for the software is of an excellent standard. Because the program has been written specifically for this scanner, there is no guess work involved: the manual tells you exactly what you need to do to get the results you want. Not that there's much need for a manual – you'll be scanning within minutes of taking everything out of the box.

Q IS IT REALLY THE BEE'S KNEES?

A Sure is. The images produced are of remarkable clarity. In fact, I only noticed one flaw: when colour scanning an original with black next to white, a fringing of colours occurred. Apart from this, I can recommend the scanner unreservedly to the serious Amiga desktop publisher.

program has been written by ASDG, the company which created *Art Department Professional*.

The software can be used in two ways. The first is to make it a module complementing *Art Department*, in which case it is accessed with the program's Load option. Instead of a disk requester, the scanner screen appears, and the image produced by the scanner, which is plugged into the Amiga's parallel port, is loaded into memory just as if it had been an image already recorded on disk.

The second method is to use the scanner controller program as a stand-alone application, the advantage being that (aside from not needing to own *Art Department*) scans are recorded direct to disk, so it's possible to scan images larger than your available memory.

The installation program that comes with the software is excellent. Help is available at all stages, and there are three different user options – novice, intermediate and expert –

Q WHAT ABOUT THE ACTUAL SCANNING?

A Once the software is installed, You'd be amazed at just how easy it is to grab an image. Full control of the scanner



Using the scanner is simplicity itself. Go to the preview screen, which gives you a dithered grey scale interpretation of the image at a low resolution. This enables you to crop the image. Memory requirements are given for different resolutions and numbers of colours. Once you've selected the area you're interested in, move to the scan window, click on the button and the scanner does the rest

is available from the screen – there's no need whatsoever to touch the hardware except to place pictures on the bed. Scanning is divided into two



brightness, which is self-explanatory. Setting gamma correction will alter the balance of light and dark tones to produce the optimum scan for

SHOPPING LIST

Epson GT 6000 and £1303.80
ASDG Driver software
Epson UK
Campus 100,
Marylands Ave, Hemel Hempstead
Herts HP2 7EZ
☎ 442 61144

ASDG
925 Stewart Street
Madison, WI 53713
USA
☎ 0101 608 2736585

CHECKOUT Epson GT 6000

Ease of Use ●●●●●
Couldn't be easier. Plug in the hardware, install the software and you're away.

Quality ●●●●●
Excellent in most cases, but let down by the fringing around black and white work.

Features ●●●●●
Scans in monochrome, grey scale or full colour in a vast range of resolutions up to 600 dots per inch.

Documentation ●●●●●
Both manuals are object lessons to technical writers.

Overall rating ●●●●●

This is the kind of useful, high quality package that gives one faith in the Amiga's ability to be a serious machine.

LASERPRINTER 4 II STAR SCRIPT



that this is a black and white printer, with shades of grey being represented by variations in the density of black dots.

The results, as you can see from the illustrations on this and the following page, are excellent, but sending graphic images to the printer is a time consuming business.

FIRST IMPRESSIONS...

The Star LaserPrinter 4 StarScript has PostScript compatibility and, although expensive, it is nevertheless good value when compared to its competitors.

Q WHAT'S THE BIG DEAL THEN?

A Like all laser printers, the StarScript is a page printer. One page is printed at a time, not as a series of horizontal lines, but all at once.

The printer uses its own memory to store an image of the page as it is sent by the computer. Once the whole image has been received, the printer puts it on to the paper using much the same mechanism as a photocopier.

The advantage is that laser printers don't suffer from banding, the distortion in vertical spacing between lines caused by inaccuracies in the paper feed mechanism of line printers. Also, because laser printers use expensive toner cartridges instead of ribbons, their output tends to be much cleaner and even. Neither are there any problems with wet ink smudging, as may be experienced by ink jet owners. The printer's resolution is 300 dots per inch. This isn't bad, although the composite dots can be seen in text at a large point size. You may be surprised to find that the resolution is lower than some dot matrix and most ink jet printers, which, if used with the correct printer driver, can yield up to 360 dots per inch.

Q WHAT KIND OF PAPER WILL IT ACCEPT?

A Paper is fed in from a tray at the side, which can be altered to accept several different sizes of paper: letter, legal, A4, executive and B5; along with the following kinds of envelopes: monarch, com-10, international DL and international C5. Optional cassettes and a paper feeder are also available.

Q BUT WHAT ABOUT GETTING IT TO WORK?

A Finding the correct printer driver is always a problem with hard copy output from the Amiga. Star's printer makes this a little easier by providing two emulations, selectable from the control panel or via escape codes. The first is an Epson FX-80 emulation, provided primarily for compatibility with dot matrix printers. The chances are that you won't bother with this, and will instead use

Using the HP emulation, it is possible to output straight text, in which case one of the printer's internal fonts is used. In HP mode, these are fairly limited: there are two different sizes of Courier, a mono-spaced font, in either normal, bold or italic, and a font called Line printer which squeezes in more characters per inch than is fair to the average eye. It's possible to make use of other fonts, too.

Cartridges are available with the likes of Times Roman, Prestige Elite, Helvetica, Letter Gothic and bar codes. It is also possible, in Hewlett

Q WILL IT WORK OK WITH MY DTP SOFTWARE?

A Well, I tried out the printer with Soft-Logik's *PageStream* 2.2. Normally *PageStream*, along with other Amiga DTP

"The printer can be used to produce very professional looking documents."



Grey scale prints look particularly attractive with the Star LaserPrinter. This one was output from *Deluxe Paint* using the Hewlett Packard LaserJet emulation at 300 dots per inch. Of course, it takes a good while for a picture like this to print out, and if the original image is too dark then the results are going to be disappointing. It's best to convert a colour picture to grey scale and adjust the palette to avoid too dark prints

the Hewlett Packard LaserJet IIP emulation. Select this along with the HP_LaserJet driver supplied on the Extras disk and you can achieve some pretty nifty results.

The problem, of course, is that the Amiga printer driver isn't entirely compatible with the printer's emulation - this is hardly surprising since the driver was written for an earlier version of the printer. Nevertheless, the output is up to scratch in all but one department: an irritating margin being created around an A4 page.

Packard emulation mode, to download fonts via software. Since most Amiga packages have difficulty in enabling the user to choose from a printer's available selection of fonts anyway, the choice of extra fonts is largely academic.

Q IS IT ANY GOOD AT PRINTING IMAGES?

A Graphical output is fine - monochrome or grey scale, that is. It goes without saying

packages, works by sending each page to the printer as a huge bit-mapped picture, in the same way that some of the high end word processors - or so-called 'document processors' - do. The difference is that *PageStream* will output to the highest resolution the printer is capable of, in this case 300 dots per inch.

It was therefore easy to create an A4 page using any of the fonts that *PageStream* cared to offer me, and including structured clip art or bit-mapped pictures from, say, *Deluxe Paint*.

The whole lot was sent to the Star printer under HP LaserJet emulation. This resulted in a very smart looking page being produced by the printer. Any of the fonts supplied with *PageStream* can be used because they are being sent as part of a large bit map - the printer need not know anything about them.

The printer can be used in this manner to produce professional looking documents, letters, reports and so on.

The only problem is the over-large margins caused by the lack of a suitable printer driver. This is a problem with most laser printers used with the Amiga. The Star LaserPrinter is more expensive than many, though, and so you would expect it to deal with the problem in some way. It does.

Q WHERE DOES POSTSCRIPT COME IN?

A PostScript is the solution – or rather Star's cloned implementation of it, StarScript. It offers a lot more

to the printer as part of the PostScript file. This has the effect of greatly increasing the printing time, since the definition for every character in the font is sent to the printer, even if only a

exceeds the printer's memory.

Using a PostScript printer gives you instant access to 35 high quality

Hurrah! PostScript compatability!

advantages than the seemingly simple ability to use more of an A4 page.

Once you have a page made up in PageStream, you can happily change the printer configuration from the HP driver to the supplied PostScript driver. The result, barring a few millimetres around the border, will be exactly the same. Using

"Using a PostScript printer gives you instant access to 35 high quality typefaces."

PostScript gains you no extra resolution: the printer is still a 300 dpi printer. The advantages are more subtle.

With PostScript, a page isn't sent as a bit map, but as a computer program which describes the page's format in mathematical terms. All PostScript printers have a standard set of 35 typefaces. If your page uses only these standard typefaces, then it will print out fairly quickly because the computer only has to tell the printer the name of the font, the size it is to be printed in, and which characters are to be printed in which order. It's almost as fast as printing in straight text mode, although the output is much more attractive.

Q SOUNDS GOOD, BUT DOES POSTSCRIPT OFFER MORE?

A If your page uses fonts not known to the printer, then the font information is also sent

couple of characters are actually used on the page.

A further problem is that the printer only has a limited amount of memory, so it can only store so many downloaded fonts in this way.

Programs such as PageStream are clever enough to instruct the printer to forget a font once it has been used so that room can be made for the next. This solution is fine when working from an

typefaces. In addition, printing in any of these typefaces in any size will be much quicker than printing using equivalent bit-mapped representations.

The advantage that PostScript offers in the graphics department is something called half-toning.

Half-toning is very similar to dithering, except that, being much more sophisticated, it gives higher quality grey scale images. Finally, using a PostScript

printer is especially useful for those who intend to send their work to a studio for output on to film via a Linotron machine. This is an expensive process, so the ability to completely proof a PostScript page at home first could save lots of money.

Q BUT AREN'T ALL PRINTERS JUST ONE BIG HEADACHE?

A Not in this case. The manuals which come with the Star LaserPrinter are very good.

The manuals explain the basics of setting the printer up, installing a toner cartridge (which can be surprisingly tricky if you've never had

to before) and selecting an emulation. They then go on to give an explanation of the laser printing

mechanism, typographical terms and even how to define one's own fonts for downloading to the printer. The various escape codes which the printer responds to are described in detail.

I can't comment on the manual dealing with the PostScript aspects of the printer, because I wasn't supplied with one. Make sure you get one, so that you get the most from the printer – PostScript compatibility is one of the printer's most valuable features.

Q SO, IS IT WORTH MY HARD-EARNED LOOT?

A The Star LaserPrinter 4 StarScript offers high quality output at a reasonable price. Nevertheless, think very carefully before buying it. Do you really need PostScript compatibility? Do you really need laser quality output?

If the answer to the above two questions is yes, then it is a good buy. If not, then I'd recommend an ink jet or a cheaper, Hewlett Packard emulating laser printer instead. **AS**

SHOPPING LIST

Star LaserPrinter II £1643.83
Starscript
Shop around; expect to pay.....£1000
Toner cartridges.....£92.83

by Star Micronics UK,
Star House,
Peregrine Business Park,
Gomm Road
High Wycombe,
Bucks HP13 7DL

CHECKOUT STAR LASERPRINTER II

Ease of Use ●●●●○
Plugs into serial or parallel port for hassle free printing.

Features ●●●●○
The PostScript compatibility plus two other emulations give you almost everything you could wish for from a laser printer.

Documentation ●●●●○
Well written manuals with plenty of info, but better indexes would help for easy access to subjects.

Price Value ●●●●○
Not bad for a PostScript compatible laser, but do you need this?

Overall rating ●●●●○
It's a good quality product delivering excellent results, but make sure you really need PostScript before shelling out this kind of cash.

Glory of Imperial Russian Army

The Russian Army has succeeded in repelling the notorious Bonaparte from our sacred homeland. Bonaparte's army is in full retreat, pursued by our valiant boys. Our man on the Moscow Road reports...

After a protracted stay in Moscow, Napoleon Bonaparte's army has turned tail and fled!

General Kutuzov, our recently Commander-in-Chief of all Russia, was reported to have burst into tears upon hearing the news.

FATAL BLOW

Kutuzov always claimed that the French army had been dealt a fatal blow at Borodino. Crises averted, pointing out that had the French been defeated, then the Russians would not have retreated beyond Moscow and would have been taken prisoner by the city.

Nevertheless, the French are now in retreat, and there has been no major engagement since Borodino.

PETERSBURG OVERJOYED

The citizens of St. Petersburg are said to be overjoyed. It was feared that the French would sack the city and burn it to the ground. While there is no question that our glorious forces would have failed to repel the notorious French, we are only rejoicing in the grace of God that it was not necessary.

FRENCH IN DISARRAY

Bonaparte's army is said to be in disarray. We have conflicting reports, but it is estimated that more than half his men have either starved, deserted or been killed. They are under constant attacks from Cossacks and Russian Army irregulars who have forced themselves into small raiding parties. Russian losses are reported to be minimal.

REWARD FOR KUTUZOV

Kutuzov is currently in disgrace because of the sack of Moscow (not true). It should be borne in mind that this is the man who repelled the French. This report hopes that Tsar Alexander will reward him accordingly.

Stop press * stop press * stop press * stop press * stop: We have just received reports of a German army marauding on Russia's borders. Diplomatic relations have been broken off. We await further news, but it looks like another war...



City of Moscow, reportedly under attack.

Moscow in flames

The holy city of Moscow is burning. The fires, which are raging across the city causing untold damage, were initially thought to be in by the French on their departure.

FRENCH SPOKESMAN

A spokesman for the French has claimed that the fires were started by the Russians when they panicked during the city and left it undefended.

ACCIDENT

A new theory gaining acceptance is that the fires began by accident. Large parts of Moscow are built from wood, and the fire service has been ineffective since Moscow was evacuated. Given that several fires start every day in the city during ordinary circumstances, and that it has been recently occupied by an army lighting many camp fires which cause nothing for it's residents, it is hardly surprising that fires have started. More news as it breaks.

Here is a quick page produced in PageStream and output to the printer. This one was printed using PostScript, but the same results are achieved using the HP LaserJet emulation

application, but the process of printing a PostScript file created elsewhere may lead to problems if it

CONTENTS AT-A-GLANCE

A600	47
Accelerator	31, 48, 50, 51
Agnus	31, 39
Amos	40
Archimedes	44
ARexx	40
Assembler	39, 40, 45, 46
Basic	40, 46
Bobs	45
C	40, 44, 46, 50, 51, 53, 56
Canon Printer	32, 34, 50
CD-ROM	52
Chip RAM	31, 39, 52
Commodore Monitor	56
Cross-assembler	50
Digitisers	54
ECS	31, 39, 51, 52
Floating point	56
Fonts	37, 45, 52
Formatting	47
Fountain	55
Gadgets	51
Genlock	40, 48
Hand Scanner	37
IconX	50
Intuition	50
Mac Disks	55
MED	54
Multisync	31, 39, 52
Okimate Printer	56
PageSetter	37, 51, 52, 53
PageStream	44, 47
Parking	39
PC	44, 46, 52
PostScript	44
Printer Drivers	32, 53
Professional Page	37, 44
Roctec Hard Drive	56
ROM Sharer	38, 39, 44, 46
Scripts	45
Seikosha Printer	45
Sprites	45
Star Printer	32, 53
Teletext	38
Video Titling	40
Viruses	55
Word Pros	32, 37, 38, 47, 51

OUR EXPERTS TACKLE YOUR REAL-LIFE PROBLEMS

AMIGA ANSWERS

How do I connect my computer to my video recorder?

NEED SOME HELP?

Can I add one set of fonts on one disk to a set of fonts on another?

Which programming language shall I learn?

How do I set the script flag on a file?

Are there any books to help me use sprites in assembly language?

Why doesn't my Amiga format disks to 880K?

How can I clear a window of text in C?

ALL OF YOUR AMIGA PROBLEMS SOLVED

SO WHAT DO ALL THOSE ICONS MEAN?



Beginners: this icon will appear next to any questions which are 'basic' in content.



General: this icon is used for any general Amiga-related queries.



Caution: be sure that you fully understand the answer before trying it out.



Danger: the answer to this question could well invalidate your warranty – or you!



Hardware: this icon is used to denote questions relating to general hardware.



Buying advice: we use this icon if the question asks us for buying advice.



Printers: this icon denotes a query about printers, printer drivers and so on.



Technical: any queries about programming will have this icon next to them.



Video: this icon relates to any query about using your Amiga with video hardware.



Music: this icon is for questions about MIDI, sampling, synthesizers and so on.



Programs: any program-specific queries have this icon next to them.



Comms: if your question relates to comms, this is the icon that we'll use.

WHATEVER YOUR PROBLEM WITH THE AMIGA, WE ARE HERE TO SOLVE IT

That's the task we have set ourselves in giving you the best possible support for your Amiga. We are confident that our experts can cope with any technical questions you can throw at them. If they don't already know the answer to your problem, they will find it out for you.

We are prepared to deal with any problem you have with the Amiga, from general enquiries about AmigaDOS or Workbench, through questions about specific pieces of software and hardware, to advice on what you need to buy to do a particular task. If it's to do with the Amiga, we will help out. What we cannot do is offer this service over the telephone – do not phone us with your enquiries, but write to us at the address below.

We also cannot enter into personal correspondence – all enquiries will be dealt with in the pages of the magazine. This does mean a bit of a delay in solving your problem, but you'll just have to be a little patient and wait for it to appear in print. You won't get a personal reply even if you enclose an SAE with your letter, so please don't bother.

Send your question on the form below to: Amiga Answers, Amiga Shopper, Beauford Court, 30 Monmouth Street, Bath BA1 2BW.

The Amiga Answers panel consists of our consultant editors

Mark Smiddy and Jeff Walker – and, of course, our resident deputy editor Cliff Ramshaw. We will also be calling on the services of all our other contributors, so you won't be able to catch us napping whatever the subject of your query.

Each panelist will be dealing with queries in their own specialist area(s) so it would help us greatly if, when writing, you label your query envelope with the name of the expert who can solve your particular problem.

Below is a list of areas of expertise. It's a list that we will add to and update every month, so you will know who to write to about any subjects not mentioned here.

<i>Gary Whiteley</i> –	Video
<i>Paul Overaa</i> –	Programming, music
<i>Mick Draycott</i> –	Hardware, programming, MIDI
<i>Jeff Walker</i> –	Desktop publishing, programming
<i>Mark Smiddy</i> –	AmigaDOS, business, CDTV, hardware projects, hard and floppy disk drives
<i>Jason Holborn</i> –	Public Domain, AMOS
<i>Jolyon Ralph</i> –	Programming, hardware, CDTV
<i>Cliff Ramshaw</i> –	All the other bits and pieces

If you send in a question for the Amiga Answers experts, please fill in and include the form below (or a photocopy if you don't want to cut up your magazine). And please also make sure that you include all the relevant details – version numbers of software and so on – so that we have the best chance of helping you. Send your form and question to: Amiga Answers, Amiga Shopper, 30 Monmouth Street, Bath BA1 2BW. Sorry, but we cannot personally reply to any questions – even if you include an SAE.

Name: _____

Address: _____

Your machine:

A500 ☐ A1000 ☐ A1500 ☐

A2000 ☐ A3000 ☐

Approximate age of machine: _____

Kickstart version (displayed at the 'Insert Workbench' prompt)

1.2 ☐ 1.3 ☐ 2.x ☐

Workbench revision (written on the Workbench disk)

1.2 ☐ 1.3 ☐ 1.3.2 ☐ 2.x ☐

PCB revision (if known). Do not take your machine apart just to look for this! _____

Total memory fitted (see AVAIL in Shell for 1.3 Workbench) _____

Chip memory available (see AVAIL in Shell) _____

Agnus chip (if known) _____

Extra drive #1 (3.5"/5.25") as DF__ : Manufacturer _____

Extra drive #2 (3.5"/5.25") as DF__ : Manufacturer _____

Hard disk: ____ Mb as DH__ : Manufacturer _____

Extra RAM fitted – type, size in Mb and manufacturer _____

Details of any other hardware which could help us to answer your question:

Now, use this space to describe your problem, including as much relevant information as possible. Please continue on a separate sheet if necessary.

NO PROBLEM!

Welcome once more to *Amiga Answers*, the section of the magazine where we endeavour to straighten out your hassles with that wonderful but occasionally stubborn machine, the Amiga. Every month we devote more space and apply more resources than any other Amiga magazine to solving your problems. We receive something like 100 queries a week, so the service is obviously appreciated.

It's my job to co-ordinate the whole thing: sorting through the questions and sending them off to the relevant chappies for the kind of in-depth answers you've come to expect; and compiling them into the lovingly crafted pages which you see before you.

I call on a wide variety of expertise to make sure you get the answers you need, which is why *Amiga Answers* is so successful. There's Mark Smiddy, industry guru, AmigaDOS-tamer and business applications wizard; Jeff Walker,

probably the most knowledgeable Amiga desktop publisher there is; Jason Holborn, long-time AMOS explorer and PD sampler, as well as good all-rounder (or should that be all round good guy?); and Toby Simpson, programmer for Millennium and hardware expert.

If it's a question about video, then I'll pass it on to Gary Whiteley, our professional videographer for whom the word 'genlock' means 'mixing Amiga graphics with video for magical results' and for whom the word 'snipwiral' means nothing at all.

Programming queries are dealt with by Paul Overaa, who's not afraid to code in any language, and who doubles as a MIDI maestro to solve your sequencing slip-ups.

Our hardware guru is Jolyon Ralph. This man knows just about everything about disks, both hard and floppy, and what he doesn't know about memory he's probably forgotten. Communication

breakdowns are fixed-up by Phil Harris.

All in all, a formidable team, supplemented by my own not inconsiderable Amiga suss. Let's face it, if we can't answer your question, it's probably one of the Mysteries of the Universe.

This month we explain the mysteries of the Enhanced Chip Set, solve your printing problems and much, much more. Take a look.

Don't forget to keep sending us those problems - we love 'em!

Cheers,
 Cliff Ramshaw (Deputy Editor)



VERSION 2 AND ECS



I am a little confused over the new Workbench 2.0, Enhanced Chip Set:

Superfat Agnus and all the rest of it. I would like to upgrade but am not sure exactly what I am getting with the so called 'upgrade' packs that are for sale.

Would I for instance get 2Mb of 'Chip' RAM if I upgraded, as I have heard that the Zydec RAM expansion is not compatible. Also can you tell me the difference between the various monitors that are available, what is multi-synch, RGB, and so on?

A Docker
 Coventry

The Enhancer pack sold for £80 contains the new Kickstart 2.04 ROM, and installation disks and manuals. The ECS Denise chip is not included in the pack: this is available separately for around £35.

Expanding to 2Mb of Chip memory requires the DKB Mega-Chip board, which at over £200 is not really economical for fitting into the A500, it makes more sense to sell your old A500 and upgrade to an A500 Plus or A600.

Most 512Kb RAM expansions are compatible with 1Mb of Chip RAM; most of the 1.5Mb RAM expansions are not, so these should be avoided unless they specifically support the extra Chip RAM.

The most popular monitors for the Amiga fall into the following categories:

- 'Standard RGB' - Monitors such

as the Philips CM8833, the Commodore 1083, 1084 and 1085 and the new Protar monitor are all more or less the same - they display all the standard Amiga graphics modes, but the interlaced video modes flicker. As these monitors were designed to work with computers such as the Amiga you should have no problems installing or using them.

- 'Multisync' - Some Multisync/Multi-Synch/Multiscan monitors will work with the Amiga. These are designed mainly for use with PCs, so getting them set up, obtaining the right cables and choosing them can be difficult - go to a dealer who can guarantee that a monitor will work with your machine.

A multisync monitor must be capable of scan rates between 15Khz and 31.5Khz horizontally and 50Hz (PAL) or 60Hz (NTSC) vertically to work with the Amiga. If you have a Flicker Fixer or similar device, you only need 31.5Khz horizontally, so most Multisync monitors will work. The new Super Denise chip and Workbench 2.0 will allow multisync owners access to a new screen mode, productivity, which will give a high resolution screen without requiring a flicker fixer. JR

SPEED DEMON



I am considering buying a hard drive and processor accelerator for my

A500. Having checked through the advertisements in *Amiga Shopper*, I have noticed that GVP has started

to market a combination of a 40 MHz 68040 with a high speed 105Mb SCSI hard drive for just £530. Being a fan of programs such as *Vista* and *Sculpt 3D*, such an add-on would be ideal for me.

This leads to several questions though... Is the GVP system any good? Will the 40MHz 68040 speed up my A500 substantially? Are there any other 'combo' systems such as the GVP drive available on the market for under £800?

I've heard that the Amiga is dying and that developers are starting to shy away from the A500. Is this true? Is the Amiga condemned?

If I spend out over £500 on a hard drive, I don't want to be left with a system that is no longer supported.

Edgar Santos
 Alvor
 Portugal

Silica hasn't actually got around to sending me a review sample, so I can only go by what I've seen of the A530 at the recent *Amiga Shopper Show* (thanks to GVP for giving me a demo). The price that you quote for the 52Mb combo card is actually wrong - the base unit (40 MHz clock speed with 1Mb of 32-bit RAM and a 52Mb SCSI drive) costs £750 and is based around the 68030, not the 68040 that you quote. That aside, it's still phenomenally good value for money. Thanks to the 32-bit RAM which is fitted as standard, programs such as *Sculpt 3D* and *Vista* are speeded up substantially. Add an optional 68881 maths co-processor and an A530-equipped Amiga really cooks!

It is true that the Amiga is not doing as well as it could in several parts of the world (most notably in France and the USA), but it's booming in other countries

JARGON BUSTING • JARGON BUSTING

Accelerator board - A device which either includes a central processor like the Amiga's, or a more advanced one in the same range, but operating at a higher speed. An accelerator is useful for calculation-intensive applications, such as 3-D rendering.

Agnus chip - The custom chip dedicated to graphics. Agnus contains the blitter, the device which can move around large sections of graphics data at high speed, providing scrolling and sprite facilities. A hardware line drawing facility is also included.

Chip RAM - The area of the Amiga's memory directly accessible by the custom graphics and sound chips. Originally a maximum of 512k, newer machines fitted with the fatter Agnus graphics chip can access 1Mb, enabling smoother animations and more screens to be displayed at once. The new A600 comes with an Agnus chip capable of addressing 2Mb of Chip RAM.

JARGON BUSTING • JARGON BUSTING

Font – The group of letters, numbers and special characters that comprise one variation of typeface, eg: 12pt Times, 12pt Times Bold, 12pt Times Italic. Sometimes (mistakenly) used in desktop publishing to refer to a type family.

Hexadecimal – A number format in which each digit can have one of sixteen (instead of the more usual ten) values. Digits above 9 are represented with the alphabetic characters A-F.

Partition – Part of a hard drive separated off from the rest. As far as Workbench, AmigaDOS and the rest of the world is concerned, a partition is a disk in its own right. Problems do come to the fore when you try to copy data between two partitions on the same drive.

Printer driver – A program that sits inbetween any applications program producing output and the printer. It converts any codes describing text and graphics format into a form suitable for a specific printer.

(especially here in Great Britain).

Some developers have pulled out of the Amiga market, but there's always many more waiting in the wings to take their place. If Commodore continues with its development program, then I personally feel that the Amiga's success is guaranteed for many years to come. **JH**

CANON NLQ



I am having problems getting my Canon PW-1080A 9-pin monochrome printer

to work properly with *Pen Pal 1.4*. In the main, the printer works very well using the *EpsonX* driver, including the full range of graphics densities, but the one thing it refuses to do is NLQ.

The reason for this is that the printer seems to emulate an Epson printer in every respect apart from this one escape sequence, which is totally different. The Epson code for NLQ is 27 120 49, the Canon code 27 40.

You are probably aware that NLQ can be selected from the front panel of the printer, but this seems to be disabled when the *EpsonX* driver is used, and operable when I use the *EpsonXold* driver – which I don't want to use all the time as it supports only two graphics densities.

That's the information, now for the questions.

Is there another driver on the Workbench or Extras disks which will work with this printer? If not, is there a way to re-write the Epson driver, or can anyone do it for me?

Why did Canon use a different code for just one escape sequence?

Bill Kennedy
Balfon
Glasgow

Writing a printer driver is not a trivial or inexpensive task. It requires a good knowledge of the Amiga and

the C programming language, plus a few months worth of development time, plus the printer to test it on.

Your best bet is to 'hack' into the *EpsonX*[CBM_MPS-1250] driver with a shareware file editor such as *NewZAP* or *FileMaster* and search for any 1B78 sequences – that's the hexadecimal equivalent of 27 120 in decimal.

Hang on a sec...

Right. I've had a quick look, and there are only three 1B78s. The first one has a 01 byte after it, the second has FE after it, and the third has 00 after it.

Not sure what the second one is, but the first looks like NLQ ON and the third looks like NLQ OFF. So if you change the first to 1B28 (and overwrite the following 01 with another 1B, so it gets ignored by the printer), and then change the third 1B78 to whatever your manual says is the code to switch NLQ off (overwriting the following 00 with a 1B), you might just have a driver which works properly with your PW-1080A.

But remember to work on a copy of the printer driver so you can revert to the original when it all goes wrong! **JW**

WHICH WP 1



I have been using *KindWords 2* for a long time now, and may I say what an excellent program it is, but I am considering upgrading to *Pen Pal* or *Wordworth*. I write a lot and I need some particular functions, and this is where you can help.

Firstly I require a word count facility. The next functions I need are just plain punctuation features, namely a dash – it is a common mistake to use the minus sign as a dash, it makes a fine hyphen but is not long enough for a proper dash – and proper quotation marks; the quotation marks I get with *KindWords* are simply two straight

lines, I want the curly ones with blobs on them.

But it does not end there, the second quotation mark should be inverted. These rules also apply to the apostrophe.

Upon investigation I have discovered that most typewriters also output quotation marks and apostrophes incorrectly. I have a *Star LC24-200* Colour printer, which I know can do the right characters if the software is right.

So what I need to know is, which word processor do I buy?

Kevin Howell
Brislington
Avon

If the characters you require are part of one of the fonts inside the *Star LC24-200*, then you will need a word processor which enables you to select that font and print any character in that font. The only Amiga word processor that gives you this kind of full control over a printer is *Protext 5.5*, which also has the word count facility you require. **JW**

WHICH WP 2



Are there any Amiga word processors that will allow me to use all the fonts of a

Hewlett-Packard DeskJet 500, including those installed in cartridges?

I currently use *QuickWrite*, which is fine, but I often have the need to use a number of different fonts, sizes and pitches within a page, especially for titling. Non-global headers and (especially) footers would also be nice. I am not particularly interested in a word 'publisher' (*Wordworth*, *Pen Pal*, et al) as I have no need for graphics within a document, but if one of these fulfilled my criteria then that would be fine.

A decent spelling checker and thesaurus wouldn't go amiss either.

On a related subject, which is the best DTP package for the Amiga? I use *PageSetter II* currently, but this is obviously limited in terms of text handling and speed. The purchase of a new DTP program will probably coincide with me getting a hard disk, so my main requirements are speed, flexibility and number of available fonts. Text has a much higher priority than graphics in my particular application of the program.

While on the subject of hard drives, how much memory will a typical hard drive take for its own purposes? Will it steal graphics (Chip) memory or expansion (Fast) memory?

Robin Bigwood
Kingswood
Glos

Protext 5.5 has all the features you mention. In fact it's the only Amiga word processor that has non-global headers and footers – or in other words, headers and footers that can be changed at any point within a document.

But for the type of specialised lay-outs you seem to be talking about you might find it easier to get top quality results with the *Professional Page 3.0* DTP system. It comes with only seven fonts, but more are available, including stacks of cheap PD and shareware ones.

But the main point here is that with *Professional Page 3.0*'s Page Genie system you will be able to create a standard lay-out design – positioning boxes which contain things like your headings, main text, headers and footers – and then have the software lay out the document automatically by simply selecting your Page Genie and answering a few simple questions about which files to import into which boxes, and which fonts and point sizes to use.

Professional Page 3.0 requires at least 2Mb of memory and a hard drive, so it's a good job you're thinking of buying one. Each partition you have on your hard drive will take up about 20-30K Chip memory. **JW**

BOXING CLEVER



I sometimes need to use my *Star LC24-10* as a typewriter as my invoices are pre-

printed. I am finding it difficult to get a word processor to print exactly in the Net, VAT and Total boxes. I use *Protext*. Can you help?

David Mason
Newcastle
Staffs

What you need to do is set up a 'template' invoice document with each element of the invoice positioned correctly on the *Protext* page. Then you simply overwrite the default data you've used for positioning purposes with the details of the particular invoice.

Creating this template will involve using a ruler which has tenths of an inch marked on it, and a bit of experimentation. Use pica pitch (10 characters per inch) for your invoices, and measure how far across and down the physical invoice certain boxes are.

For instance, if the VAT box was 6.3 inches across the page and 5.5 inches down the page, then your VAT position on the *Protext* template would be at column 63 on line 33 – the line number is calculated by multiplying the 5.5 inches by 6 lines per inch, the standard line spacing.

If you study the *Protext* 'stored

continued on page 37

DRIVING FORCE

ROCHARD RH800C

EXTERNAL HARD DISK DRIVE
FOR THE A500 AND A500+



“ . . . switch on your Amiga and be amazed at the speed with which it boots up. ”

“ If you're looking for a hard drive for your Amiga, this should be high on your list. ”

AMIGA SHOPPER
REVIEW MAY 1992

- streamline plastic casing for perfect fit to your A500 or A500 Plus
- upgradable HDD capacity (40MB and above) with user friendly installation
- supports 2 IDE hard drives
- external SCSI port supports up to 7 extra SCSI hard drives or other SCSI peripherals
- expandable to 8MB SIMM memory in 4 easy steps
- game switch ensures complete compatibility with game softwares
- can be used solely as a 8MB RAM expansion
- Augoconfig compatible and autoboot with Kickstart 1.3 and above
- auto power sensing
- reliable external power supply unit included



ROCTEC

52MB
SCSI,OK

£339.⁹⁰
RRP £349.90 INC VAT

105MB
SCSI,OK

£499.⁹⁰
RRP £509.90 INC VAT

ORDERS CONTACT:

316 SUPPLIES,
SULLYVIEW INDUSTRIAL ESTATE,
BARRY, SOUTH GLAMORGAN, CF6 3BE

(0446) 421316

ORDERS CONTACT:

EVESHAM MICROS LTD,
UNIT 9, ST. RICHARDS ROAD
EVESHAM, WORCS. WR11 6XJ

(0386) 765500

DEALERS ONLY CALL:

ZYE TECHNOLOGY LTD., UNIT 2,
ALPINE WORKS, OAK ROAD,
CRAWLEY, WEST SUSSEX RH11 8AJ

(0293) 538666

ZYE
TECHNOLOGY
LIMITED



PHOENIX

SALES 0532-311932

Our friendly, highly trained sales team will ensure that your order is dealt with efficiently and with the minimum of fuss.



At the time of placing your order we will advise you of anticipated delivery time and answer any other queries you may have regarding your purchase. All major credit cards accepted.

TECHNICAL 0532-319081

The Phoenix product helpline ensures that all our customers benefit from the highest level of after sales technical support.

We also offer advice to help you in choosing exactly the right product for your requirements thus eliminating the possibility of an unwanted or unnecessary purchase.



DESPATCH 0532-310796

Once you have made the decision to purchase from Phoenix your order will be dispatched promptly and without fuss.



Using one of the countries leading courier services ensures that your goods arrive on time, intact and in the same condition they left our stock.

A 600 RAM EXPANSION

Phoenix-the first company to market A500 Plus RAM Upgrades-now introduce the Phoenix PA 601

Features Include • Trapdoor installation Will not invalidate your warranty • Battery backed real time clock • Long life lithium cell • Enable/disable facility • Full installation instructions • Made in U.K. • Complete with famous Phoenix 2 year warranty.

Phoenix PA 601-populated-1Mb.....£44.99
Phoenix PA 601-unpopulated-0Mb.....£24.99
Phoenix A 600 ROM Sharer.....£29.99
Keyboard switchable!

AMIGA 600



With its modern compact semi portable wedge shape design, the new 600 is fully featured and can be purchased in the following configurations:

A 600 (incl. Deluxe Paint + software title).....£339.99
A 600 HD (incl. 20 Mb Hard Drive).....£444.99
A 600 2Mb (incl. above software).....£384.99
A 600 HD 2Mb.....£489.99

PHOENIX AMIGA Power Pack

When purchasing any Amiga you can also buy our unbelievable value PHOENIX POWER PACK, which includes over £100 of quality software and accessories. Probably the best bundle around, just look at what you get!

SOFTWARE
Man Utd Europe • Kick Off 2 • Captive
Rick Dangerous • Pro Tennis Tour 2
ACCESSORIES
Fully Microswitched Joystick
50 Capacity 3.5" Disk Box
8mm Mouse mat • 10 Phoenix Branded
Disks with Labels

Phoenix Power Pack.....£39.99

AMIGA 1500

2.04 Workbench Includes: Deluxe Paint 3, Platinum Works, Home Accounts, Toki, Puzznic, x Elf, Amiga Format Book and Joystick

AMIGA 1500.....£554.99

AMIGA 1500 + 1084 SDI

This **SPECIAL OFFER** combines both the A1500 (as shown above) and the legendary Commodore 1084 SDI Monitor.

AMIGA 1500+1084 SDI.....£744.99
Limited Stocks Only!

EMULATORS-A 500

GVP PC-286 16MHz.....£239.99
Vortex A Tonce Plus 286 (16MHz).....£214.99
KCS Powerboard (with DOS 4.01).....£199.99
KCS Powerboard only.....£184.99

"It was a real pleasure dealing with your company, and I will recommend you to all of my friends"
A Bicknell-Manchester

MONITORS

PHILIPS 8833Mk II.....£214.99
Colour Stereo Monitor Including "F19 Flight Simulator" and 1 years on-site warranty.
COMMODORE 1085 SDI.....£216.99
COMMODORE 1084 SDI.....£199.99
All monitors are supplied with a **FREE** cable for connection to your Amiga.

MONITOR ACCESSORIES-

14" Dust covers.....£4.99
14" Tilt & Swivel stand.....£13.99
Anti-Glare filter screen.....£19.99
A4 Copy Holder.....£12.99

HARD DRIVES A500

GVP IMPACT SERIES II Hard Drives, the fastest Hard Drive/Controller for the Amiga. Features Game Switch, external SCSI port, FAAASTROM SCSI Driver, GVP's custom VLSI chip and internal RAM expansion up to 8 meg! Units use high specification fast-access QUANTUM Hard Drives coming with 2 yr. guarantee.

A500-HD8+ 52 Mb (Unpopulated).....£349.99
A500-HD8+ 120 Mb (Unpopulated).....£464.99
A500-HD8+ 240 Mb (Unpopulated).....£729.99
ROCHARD 52Mb.....£339.99
ROCHARD 105Mb.....£449.99
ROCTEC (Controller Only).....£164.99
Very similar in style and appearance to the GVP HD8+ but unpopulated and without a hard drive so you can fit your own. Great for all those drives lying at the bottom of cupboards! Please specify IDE or SCSI.

EXTRA MEMORY-Only £27.99 when bought with drive!

HARD DRIVES 1500/2000

Series II Hard Disk Controller/RAM card.....£139.99
Series II 52 Mb Hard Disk and RAM card.....£279.99
Series II 120 Mb Hard Disk and RAM card.....£419.99
Series II 240 Mb Hard Disk and RAM card.....£649.99
EXTRA MEMORY-Only £27.99 when bought with drive!

ACCELERATORS A500

GVP COMBINATION ACCELERATORS & HARD DRIVES-The ultimate expansion product for the Amiga 500!

A530 Combi 40MHz + 52Mb Hard Drive.....£694.99
A530 Combi 40MHz + 120Mb Hard Drive.....£829.99
A530 Combi 40MHz + 240Mb Hard Drive.....£1019.99
A530 68882 Co-Processor.....£229.99

ACCELERATORS 1500/2000

GVP G-Force 030-25MHz + 1Mb.....£545.99
GVP G-Force 030-40MHz + 4Mb.....£894.99
GVP G-Force 030-50MHz + 4Mb.....£1264.99

ACCELERATOR RAM Modules

1Mb Simm-32 Bit 60 Nanoseconds.....£65.99
4Mb Simm-32 Bit 60 Nanoseconds.....£182.99

DISK DRIVES

All drives feature super slim design, enable-disable switch, thru port and come with a 1 year replacement guarantee!

Phoenix Deluxe Drive.....£47.99
Roctec Roclite.....£54.99
Cumana CAX 354.....£52.99
Replacement A 500 Internal Drive.....£39.99
Disk head cleaner.....£3.99

PHOENIX A500 Plus 2 Meg RAM Upgrade Modules



A PHOENIX RAM module can expand your chip RAM up to 2 Mb by using the trapdoor expansion port. Extra RAM is necessary to unleash the incredible graphics capabilities of your Amiga. Designed and built to exacting standards in the U.K. all our boards carry a full 2 year no quibble replacement guarantee. It's never been cheaper to upgrade!

1 Mb Fully populated RAM board.....£39.99
1 Mb unpopulated RAM board.....£16.99

PRINTERS

STAR-
LC20.....£134.99
LC200 Colour.....£195.99
LC24-20.....£199.99
LC24-200.....£224.99
LC24-200 Colour.....£279.99
SJ48 Bubblejet.....£229.99
Star printers come with one year warranty.

CITIZEN-

Swift 9 Colour.....£194.99
224 mono.....£214.99
224 Colour.....£244.99
Swift 24e Colour.....£274.99
Citizen printers come with 2 year warranty.

HEWLETT PACKARD-

Deskjet 500.....£339.99
Deskjet-500 Colour.....£559.99
HP printers come with 3 year warranty.

HP black ink cartridge.....£24.99
HP colour ink cartridge.....£29.99

PHOENIX PRINTER PACK-

Supplied with **ALL** printers containing 1.8m std. printer cable, printer ribbons/cartridge and 250 sheets of paper absolutely **FREE**.

PRINTER ACCESSORIES-

Dust covers from.....£4.99
Ink cartridges from.....£13.99
Mono ribbons from.....£3.50
Colour ribbons from.....£7.99
Printer stand.....£7.99
Auto sheet feeder.....£POA

CHIPS

These prices are accurate at the time of going to press but please call for the best deals. Quantity discounts are also available on some chips so please ask.

AMIGA CUSTOM CHIPS

Kickstart 2.04 ROM.....£34.99
Kickstart 1.3 ROM.....£29.99 Fatter Agnus 8372A.....£34.99
NEW Super Denise.....£34.99 CIA 8520A.....£9.99

MEMORY CHIPS

4 Mb x 9 (-70) Simm.....£119.99 1 Mb x 4 (-80) Zip.....*£34.99
1 Mb x 9 (-80) Simm.....£29.99 256k x 4 (-80) Zip.....*£29.99
256k x 9 (-80) Simm.....£12.99 1 Mb x 1 DRAM.....£3.49
256k x 4 DRAM.....£3.49 *This price is for 1 Mb of RAM
These chips cover practically every popular memory expansion or Hard Drive system on the market for the Amiga ie. GVP, SUPRA, MICROBOTICS, COMMODORE

RING OUR TECHNICAL HELPLINE IF YOU NEED ADVICE

MEMORY EXPANSION

SUPRA 500RX Offer the ultimate in Fast Ram expansion units.

8 Mb pop to 1 Mb*.....£99.99
8 Mb pop to 2 Mb*.....£124.99
8 Mb pop to 2 Mb.....£149.99
8 Mb pop to 4 Mb.....£209.99
8 Mb pop to 8 Mb.....£309.99
(*Uses 256x4 Zips)

VIDEO

Rombo's new Vidi Amiga 12 is the Scottish Company's direct replacement for their famous complete colour solution. Leaders in video capture systems, they now introduce the world's first mass market colour digitiser for under £100.

VIDI-AMIGA 12.....£94.95

FEATURES INCLUDE: • Colour images captured in less than a second • Mono images grabbed in less than a second • Multi Tasking software • Advanced error diffusion stippling • Cut and paste with masking • Capture into a user definable window • Load and save IFF, ILBM & ANIM files • Grab flipped on an X or Y axis • Multi frame store with animated playback • Composite or S-Video input

TAKE 2.....£42.99

A must for computer artists and enthusiasts of any age. • Traditional animation • Story boards • Product • Presentations • Home Line Tester • Cartoon Productions (both visual and sound).

ROCGEN Plus.....ONLY £129.99
Quality features and performance-Recommended.

ROCTEC ROCKEY.....£299.99
(As detailed opposite).

ACCESSORIES

Zy-Fi Stereo speakers.....£37.99
These quality stereo speakers have become the Amiga's standard-An excellent companion for any gaming soirees!

Control Centre.....£34.99
Transforms your Amiga into any ergonomists dream-giving a hi-tech interated workstation environment.

DATA SWITCHES (25 pin D type)

2 way.....£15.99
3 way.....£17.99
4 way.....£19.99

STORAGE

90 Capacity BANX.....£11.99
150 Capacity POSSO.....£18.99
Disk Box 10 Cap.....£1.99
Disk Box 25 Cap.....£2.99
Disk Box 50 Cap.....£4.99
Disk Box 100 Cap.....£6.99
Disk Box 120 Cap.....£7.99

"I would like to thank you for your fast and efficient service. I shall, without doubt, recommend you to all my colleagues"

P. Gallup-Ryde

PHOENIX PRODUCTS

Mouse/Joystick Switch.....£13.99
Don't damage your Amiga's ports! This device saves wear and tear makes switchover FAST, and does NOT require power unlike many others.

COMPUTER/VIDEO SCART SWITCH.....£19.99
Flip between Video/computer signals at the push of a button.

AMIGA MUSIC

Attention all you music lovers! Phoenix have put together an unbeatable music deal for you this summer.

MUSIC-X Jnr.....only £15.00
When purchasing either a Phoenix Stereo Sampler or Pro Midi 2 Interface (Phoenix Price - this is a limited offer only, stocks limited)

STEREO SAMPLER.....£34.99
Combines ease of use with state of the art analogue to digital conversion technology (inc FREE sample adding software - audio lead)

PRO-MIDI 2 INTERFACE.....£24.99
This fully featured professional quality midi interface is very flexible giving semi-patch bay facilities. It has five ports in, out, thru and two switchable out/thru. (inc FREE midi lead)

GVP DIGITAL SOUND STUDIO.....£54.99
High quality sound sampler for all Amiga Computers
Amiga Music Made Easy-Only from Phoenix!

SOFTWARE

WORD PROCESSING / DTP

Excellence V3.....£89.99
Interword.....£29.99
Pagestream V2.2.....£126.99
Pagestream Front pack 1.....£44.99
Page Setter 2.....£46.99
Pen Pal.....£57.99
Professional Page V2.X.....£179.99
Prowrite V3.X.....£57.99
Quickwrite.....£36.99
Scribble Platinum.....£35.99
Transwrite.....£29.99
Gold Disc Office.....£59.99
Wordworth.....£79.99
Professional Draw 3.....£103.99
Xcad 2000.....£99.99
Xcad 3000.....£269.99
Hot Links.....£52.99
Platinum Works.....£64.99

UTILITIES

Cross Dos.....£22.99
Diskmaster 2.....£43.99
Dos 2 Dos.....£29.99
Opus Directory.....£29.99
Xcopy.....£36.99
Power Windows.....£49.99
Quarter Back.....£45.99
Quarter Back Tools VS.....£49.99

DATABASE

Superbase Pro 4.....£164.99
Superbase Pers 2.....£61.99

VIDEO PRODUCTION/TITLING

Big Alternative Scroller.....£35.99
Broadcast Titler 2.....£179.99
Font Pack 1 for Broadcast Titler 2.....£88.99
Font Enhancer for Broadcast Titler 2.....£88.99
Pro Video Post.....£168.99
TV Show Pro.....£51.99
TV Text Pro.....£84.99

FRACAL AND SPECIAL FX

Alter Image F/X.....£97.99
Deluxe Paint 4.....£63.99
Deluxe Photo Lab.....£51.99
Deluxe Video 3.....£71.99
Image Finder.....£44.99
Pixmate.....£43.99
Scenery Animator.....£62.99
Vista.....£43.99
Pro Vista.....£71.99

ANIMATION

Amos.....£36.99
Amos Compiler.....£21.99
Amos 3D.....£25.99
Easy Amos.....£22.99
Animagic.....£57.99
Deluxe Paint 4 Deluxe Video 3.....£71.99
Director V2.....£71.99
Imagine.....£199.99
Map master for Imagine.....£59.99
Presentation Master.....£169.99
Surface Master for Imagine.....£29.99
Sculpt Animate 4D.....£282.99
Showmaker.....£142.99
X-Cad 2000.....£99.99
X-Cad 3000.....£269.99
Video Director.....£107.99

PRESENTATION & SLIDE SHOW

Amigavision.....£88.99
Art Department Pro V.1.....£143.99
Art Department Pro Conv. Kit.....£57.99
Can Do It V.I.G.....£94.99
Hyper Book.....£44.99

ACCOUNTING

Arena Accounts.....£83.99
Home Accounts 2.....£39.99
System 3.....£43.99
Cashbook Combo.....£57.99

MICE & TRACKBALLS

NAKSHA

Upgrade Mouse.....£24.99
Roctec Mouse.....£13.99
Squik Mouse.....£13.99

GOLDEN IMAGE

Crystal Trackball.....£37.99
Fanciful two colour shining trackball-who can resist?

Infrared-Cordless-Mouse.....£47.99
(Rechargeable)

Optical Pen Mouse.....£POA
Mouse Mats.....£3.99

SCANNERS

Powerful image processing tools for the office or the home enviroment.

PANDAAL

Datascan.....£109.99

POWER-

Features:100-400 dpi • 64-Greyscales
Thruport to printer • FREE Editing software.

Power Scanner v2.0.....£94.99
Power Scanner Colour.....£234.99

GOLDEN IMAGE-Hand Scanner Series

Features:400 dpi • 256-Greyscale • Touch up and Merge it software.

AlfaScan.....£124.99
AlfaScan Plus.....£149.99
AlfaScan T (inc OCR Software).....£249.99
AlfaScan OCR (inc OCR Software).....£279.99

PHOENIX Kickstart ROM Sharer

Because some older games and business software will not run on the new Kickstart 2.04 ROM, PHOENIX have designed a sharer for both ROM chip sets. Switchable between 1.3 and 2.04 you can get all the benefits of the latest A500 Plus without the drawback of losing all your old software. Fits any Amiga 500/1500/2000.



*Kickstart ROM Sharer.....£24.99
*Kickstart Rev 3/5 ROM Sharer.....£27.99
*Keyboard Switchable ROM Sharer.....£34.99
Kickstart 1.3 ROM.....£29.99
Kickstart 2.04 ROM.....£34.99

*(ROM Chips not included)

"Dear Sir, I am Writing to thank your company for the help shown to me recently, when I purchased the Phoenix ROM Sharer"

R. W. Cooke- Milton Keynes

AMIGA RELEASE 2

Now Only..

£79.99



The popular upgrade kit for 12/13 owners from Commodore is in stock and selling fast!

TRAIL BLAZERS-WHAT'S NEW IN AUGUST 1992!

In this month's new "TRAIL BLAZERS" section we spotlight some of the best new products and peripherals currently available for the Amiga.

ROMBO VIDI AMIGA 12.....£94.95
(for details see below/opposite)

PHOENIX 1Mb A600 UPGRADE

Simply the Best!
£44.99



EPSON GT-6000 FLAT BED FULL COLOUR SCANNER-Plug into Amiga parallel port scan documents as a resolution of up to 600 dots per inch in up to 16 million colours

Phoenix Price.....£989.00

ASDG-SOFTWARE-Scanning controller software comes in two forms, integrated into art development as a new module or used as a stand-alone programme-Save scans direct to disk-

Phoenix Price.....£109.99

ROCKEY BY ROCTEC-The new chroma key unit - used in conjunction with a Genlock - allows you to superimpose live video over graphics or video-substitute the brightness portion of a video source with a keyed image-Embed live video in graphics!
Phoenix Price.....£299.99

LEADS & CABLES

Midi-Midi 2m.....£3.99
Midi-Midi 3m.....£4.99
Midi-Midi 5m.....£5.99
Amiga-Scart.....£9.99
*Amiga-RGB.....£9.99
Joystick ext.....£4.99
Joystick splitter.....£4.99
*Serial/Modem.....£9.99
Printer 1.8m.....£5.99
Printer 2.0m HQ.....£7.99

*Call technical for complete listing

DISKS

Don't confuse these quality disks with others currently available. 3.5" 100% certified error free 70% clip. All disks include FREE high quality Phoenix labels.

10.....£4.99 200.....£72.99
25.....£12.99 500.....£174.99
50.....£22.99 750.....£259.99
100.....£39.99 1000.....£339.99

TDK Branded disks- High performance media from the experts-box 10 with labels.

10.....£5.99 100.....£52.99
50.....£26.99 500.....£189.99

1000 Disk Labels.....£9.99

CALL OUR ORDER HOTLINE NOW!

- Free Fast UK delivery
- Next-day Courier only £4.50
- Same-day despatch on Credit card orders/bankers draft/building society cheque/Postal orders
- All prices include VAT

AMERICAN EXPRESS WELCOME



PHOENIX - MAIL ORDER AT IT'S BEST!

Tel: 0532 311932

FCC DISTRIBUTION, UNIT 19, ARMLEY PARK COURT, STANNINGLEY ROAD, LEEDS LS12 2AE
Please make cheques payable to FCC Distribution Ltd. Allow 5 working days for cheque clearance. Call our despatch line for details on our full range of delivery options both in the UK and overseas. BFPO welcome. OPENING TIMES: Mon-Sat 9.00am-6.00pm £60.00

MJC COMPUTER SUPPLIES

Suppliers of Discount Software since 1984

Educational, Local Authority and government orders welcome. European orders please call or write for a quotation. All goods subject to availability, prices subject to change without notice. E&OE.

Prices include VAT and delivery by post.
Courier delivery available on request.
Please allow 5 days for cheque clearance.

TO ORDER: Credit card orders can be placed by calling the telephone number below - or send a cheque/PO's made out to MJC Supplies to:

MJC SUPPLIES (ASH)
Unit 2 The Arches, Icknield Way,
Letchworth, Herts. SG6 1UJ.
Tel: (0462) 481166 (6 lines)

NAKSHA UPGRADE MOUSE

280 DPI quality replacement mouse - pack includes Mouse House, Mat and Operation Stealth game.

MJC PRICE £22.95

NEW - A500 PLUS 1Mb Expansion

1Mb expansion for the A500 Plus - fits in the trapdoor taking your memory to 2Mb - no internal fitting

MJC PRICE £39.95

NEW - A600 1Mb Expansion

Increases the memory of the A600 to 2Mb

MJC PRICE £47.95

SUPRA 500RX 2Mb Expansion

This memory expansion for the A500 or A500+ uses 1Mb x 4 chips and can be expanded up to 8Mb

MJC PRICE £139.95

NEW - ROBOSHIFT

Auto sensing joystick/mouse switch box.

MJC PRICE £13.95

CUMANA CAX 354 DISK DRIVE

Quality brand name 3.5" second drive includes thru port, disable switch and FREE Virus X Utility

MJC PRICE £54.95

NEW ROCLITE RF382C DISK DRIVE

New super slimline, super quiet second drive.

MJC PRICE £57.95 (cream only)

GVP PRODUCTS

NEW - GVP RAM BOARD: for A1500/2000 comes with 2Mb Fast Ram on board and can be expanded up to 8Mb using standard simm modules.

MJC PRICE £159.95

GVP A500/500 Plus 52Mb Hard Disk: features on board Ram expansion to 4/8Mb with high speed Faastrom controller. Autobooting, includes excellent easy to use installation software.

MJC PRICE £349.95

GVP 286 PC EMULATOR: for use with the A500 Hard Drive. 286 speed running at 16Mhz.

MJC PRICE £229.95

GVP S II Hard Drive (A1500/2000): Quality Quantum drives running as fast as 11ms plus the excellent GVP controller board, with the ability to add up to 8Mb memory (SIMMS).

52Mb version £279.95

NEW - 120Mb version £419.95

SIMM MODULES - £59.95 per 2 meg

NEW - KINDWORDS 3

Features include - Ability to open two documents at once, Import Kindwords 2 files, Proximity spell checker and thesaurus, Text flow around graphics. Requires 1Mb RAM.

MJC PRICE £32.95

PROTEXT V4.3£39.95
Pen Pal V1.4£54.95
Wordworth V1.1 - U.K. Version£74.95

NEW - MAXIPLAN 4

Latest release of this excellent spreadsheet - up to 3 worksheets open at once, 70 in built functions, 12 graph styles, database facility, colour or mono printing and much more. Requires 1 Mb.

MJC PRICE £34.95

NEW - ACTION REPLAY III

MJC PRICE £57.95

MISCELLANEOUS

Stereo Master£29.95
Techno Sound Turbo£29.95
Pro Midi Interface£19.95
Home Accounts 2£36.95
DELUXE PAINT 4£59.95
Hisoft Devpac 3£47.95
Hisoft Hi-Speed Pascal£69.95

AMIGA EDUCATIONAL

FUN SCHOOL -

probably the best selling Educational Software for the Amiga - great sound and graphics and now conforms to the National Curriculum (FS3 & FS4)

Fun School 2 - 8 programs per pack

Fun School 2 under 6£9.95
Fun School 2 6 to 8£9.95
Fun School 2 over 8£9.95

Fun School 3 - 6 programs per pack

Fun School 3 under 5£15.95
Fun School 3 5 to 7£15.95
Fun School 3 over 7£15.95

NEW - Fun School 4 - 6 programs per pack

Fun School 4 under 5£16.95
Fun School 4 5 to 7£16.95
Fun School 4 7 to 11£16.95

All Fun School programs will work with a standard 512k Amiga and the new A500 Plus.

KOSMOS Answerback Junior Quiz -

includes 750 general knowledge questions and a game reward£14.95

Answerback Senior Quiz -

as above but for age 12+£14.95

Factfiles - add-on question packs for the Answerback Quiz:

Factfile Spelling (6-11)£7.95
Factfile Arithmetic (6-11)£7.95

KOSMOS Language Tutors: with a vocabulary of over 2500 words + the ability to add your own - up to GCSE level:

French Mistress£14.95
German Master£14.95
Spanish Tutor£14.95
Italian Tutor£14.95

KOSMOS Maths Adventure: The latest offering from Kosmos covers the National Curriculum maths using a series of four games. There are four difficulty levels and your performance can be kept and printed out. (6-14)£17.95

ROMBO PRODUCTS

NEW - TAKE 2

New Animation package from Rombo

MJC PRICE £39.95

VIDI COLOUR SOLUTION

Vidi Colour package - including Vidi Digitiser, Vidichrome software and free Photon Paint

MJC PRICE £49.95

RGB SPLITTER - for use with Vidichrome or Digiview. (includes PSU)

MJC PRICE £49.95

COMPLETE COLOUR SOLUTION

Package includes Vidi Amiga, Vidichrome and the RGB Splitter for a complete colour digitising outfit.

NOTE: For best colour pictures you require a video camera or perfect still frame VCR.

MJC PRICE £99.95

Comp Col Solution + Take 2. MJC PRICE £129.95

Rombo prices held whilst stocks last.

NEW - MEGAMIX MASTER

New Stereo sampler and digital effects package.

MJC PRICE £28.95

ROMBO prices held whilst stocks last.
Call for details of new Rombo Digitiser.

VIDEO TITLING/PRESENTATION

Big Alternative Scroller£42.95
Broadcast Titler II£159.95

ROCTEC ROGEN GENLOCK

Budget priced genlock, includes fader.

MJC PRICE £89.95

Roctec Plus Genlock £129.95

AMOS - The Creator

NEW - EASY AMOS - Powerful but easy£24.95

AMOS V1.2 - The original Language£32.95

AMOS COMPILER£19.95

AMOS 3D£21.95

LCL SOFTWARE

Primary Maths Course (3-12)£19.95
Micro Maths (GCSE level)£19.95
Micro French (GCSE level)£19.95
Micro English (GCSE level)£19.95
Reading and Writing Course (3+)£19.95

NEW - MEET ADI 1

ADI is a friendly alien being that appears on this latest range of educational software from Europress (the manufacturers of the fun School range). Each package is specifically designed to follow the National Curriculum for a particular school year.

ENGLISH 11/12:

Features pronouns, verbs, adverbs, spelling, synonyms, and prefixes/suffixesMJC Price £17.95

ENGLISH 12/13:

Using dictionaries and reference books, construct adverbs, punctuate sentencesMJC Price £17.95

MATHS 11/12:

Covers geometry, algebra, statistics symmetry, quadrilaterals and number operationsMJC Price £17.95

Further information on our Educational range is available in our Educational Supplement - on request

VISA

Remember - prices include VAT & delivery!

Access

continued from page 32

command' language you'll discover that it is possible to create a 'program' that will ask you questions like name, address, amount and so on, and then place these details into the correct positions on the invoice template; you can even get it to calculate totals and VAT. Check out the Stored Command, Mail Merging and Sample Merging Documents sections of the manual. **JW**

CONFUSED PUBLISHER



I hope you can help me with this query as it is proving to be beyond my logic and understanding.

I have been playing around with DTP for some time, with reasonable success on PageSetter, and I have now invested in Professional Page. I expected to be able to import my PageSetter pages straight into it, however this doesn't seem to be the case. Is there a way to do this?

But this is not my immediate problem. The need to write to you is with concern over my laser printer. I have bought a Panasonic KX-P4430 as a substitute to my KX-P1124 dot-matrix, and I cannot get a full A4 print-out from the machine.

I am using an Amiga 500 with extra memory and hard drive, running Workbench 2. I can get the full A4 if I use the never very highly rated KindWords, however when I use Professional Page I can only get down to about 25cm from the top of the page. Anything below this is left off.

I am aware that most laser printers indicate the need for a large margin, and had I not been getting full A4 from a LaserJet III I would probably not have considered a laser printer at all.

Can you please give me an answer, enabling me to get full A4 from Professional Page? Enclosed is a list of the settings I am using plus samples of test work that indicate the problem.

**DM Vaughan
Radley
Oxon**

Firstly, *PageSetter II* documents cannot be loaded into *Professional Page*. Despite the many similarities, there are several things that work quite differently, which all ends up with the file formats being incompatible.

In theory it should be possible to write a program to convert *PageSetter II* documents into a format which is readable by *Professional Page*, but you (and everyone else) will have to write to Gold Disk about this and throw yourselves on that company's mercy.

In the meantime it'll be quicker and less frustrating to re-create your *PageSetter II* pages in *Professional Page* by hand.

The 10in LaserJet cut-off is a 'feature' of the printer driver. It has been a big problem for years and I've been warning people about it in this magazine (and others) for years. Unfortunately most people either take no notice or think I'm kidding. I don't care, it's not my money.

The reason *KindWords* is printing all the way to the bottom and *Professional Page* is cutting off at 10 inches is because *KindWords* is doing a text printout, while *Professional Page* is doing a graphics print-out. This used to be one of the main differences between word processing and desktop publishing, but most Amiga word processors have graphics output features these days, so it affects them as well.

The 10 inch limit only affects graphics. You'll get the same problem with any other Amiga program that prints in this way.

I have searched worldwide, and I can find no proper Amiga LaserJet II or III driver. I know of nobody who is developing one.

On Jamdisk 2 there is a LaserJet Plus driver that has this 10in graphics limit removed. It's nowhere near perfect, but it's the best there currently is.

What an absolutely stupid state of affairs, eh? It's about time Hewlett-Packard and Commodore got off their butts and did something about it!

If there is anyone reading this who is considering buying a laser printer, you may like to know that there are proper Amiga printer drivers for the Canon LBP-4 and LBP-8 series of laser printers, available on Jamdisk 9.

The Jamdisks cost £2 (inc) from: JAM, 75 Greatfields Drive, Uxbridge UB8 3QN (☎ 0895 274449). But they don't take plastic, the silly people. **JW**

BAD SCANS



When using my Datel Geniscan hand scanner in photo mode, why is the

picture quality so awful? It's made up of large dots which I cannot retouch. Even in letter mode, when scanning smooth lines, they come out jagged.

Is it me, the software, or the hardware?

I'm into DTP, hence the scanner. How do I get smooth edges to imported graphics using PageSetter II? And how do I speed up the printing?

I use the Compugraphic fonts for most of my leaflet, but for headlines they are not suitable. How

UNKIND WORDS



I have a Canon BJ-10e bubble jet printer. With this I bought the Canon48 printer driver.

My problem is that I am able to print standard text with KindWords, but not in SuperFonts. The computer will not accept it and will revert all text on the screen to the standard printer font.

Can I buy additional fonts or software to get the printer to do fancy text? Is it worth investing in another word processor (such as ProWrite 3.27) to get quality text, or is it the driver that needs to be updated?

**Christopher Mitchell
Deeside
Clwyd**

Yes, you need a better word processor. And that Canon48 printer driver, by the way, is an early development version of the CanonBJ130 driver. There's a much better driver specifically written for the BJ-10e and BJ-10ex, including a special printer preferences and font download program, available on Jamdisk 5 from JAM ☎ 0895 274449. **JW**

do I use the fonts from PageSetter 1.2 without creating jaggies?

In Jersey the two (!) computer stores do not carry 'unusual' extras like scanners. How can I try before I buy and ensure I get the right tools? I'll need a genlock soon...

**Russell Butler
Trinity
Jersey**

The reason your photo scans are so awful is because the Datel Geniscan software and hardware isn't up to the job.

What you need is a scanner package which enables you to turn the dither created by the scanner (the pattern of large dots you mention) into a true 16 greyscale image. We published a hand scanner round-up in issue 13 - read that if you want in-depth information, but the bottom line of the article is basically that the Power Scanner is currently the best.

To obtain smooth edges to imported bitmaps in *PageSetter II* you need to scale the graphic down to at least 25 per cent of its full size. Double click on the box that's holding your graphic and adjust both scaling figures to be 0.25. (If your graphic is med-res you will need to double the Y figure to keep the correct aspect ratio).

Printing at high resolution takes time. It's not governed by the software particularly, it's down to the speed of the processor inside the computer and the speed of the printer itself. The only way to significantly speed things up is to buy an accelerator.

You cannot use Amiga bitmap fonts in *PageSetter II*, like those used with *PageSetter 1.2*, without getting jaggy output. That's why Compugraphic fonts were invented. Speak to George Thompson Services (☎ 0707 664654) about PD and shareware Compugraphic-type fonts

or EM Computergraphic (☎ 0255 431389) for commercial fonts for *PageSetter II*.

I'm not sure how you expect me to answer your last question. Move to somewhere that has more computer shops? OK, silly answer maybe, but if the products can't come to you, then what other choice is there but for you to go to the products?

How about making a trip to the Future Entertainment Show at Wembley next November 5-8? It's either that or take the advice given in *Amiga Shopper*. Which, after all, is what we're here for. **JW**

NO WAY DOWN



I have a MicroLine U83A 9-pin printer, and when it prints the letters 'p', 'y' and 'g' it leaves off the bottom part of the letter so that 'p' looks like an 'o' and 'y' like a 'u'.

I don't know whether my printer head is damaged or I'm using the wrong driver. I've used generic, Okidata, Okimate and Epson drivers from the Extras disk to no avail.

**MA Hawes
Newport
Gwent**

Yup, the head's knackered. I think you'll find it'll be cheaper to buy a new printer than get that old MicroLine fixed. You could do a lot worse than replacing it with the Star LC-200, for which there is a proper Amiga printer driver, written specifically for the LC-200, on Jamdisk 5 (from JAM on 0895 274449). **JW**

WORKBENCH 2 FAILURE



I have bought Workbench 2. I own an A1500 with GVP Series II hard drive and 4Mb of extra RAM. I installed

JARGON BUSTING • JARGON BUSTING

Hard drive – Like a floppy drive, but much bigger and faster. Also, its disk cannot be removed.

Kickstart – The most basic and central part of the Amiga's operating system. These days it is held in ROM, so that it is immediately present when the machine is switched on. A1000s have Kickstart on a floppy disk meaning that on power up this disk must be inserted before the Workbench disk.

RAM – Random Access Memory, so called because any part of it can be accessed immediately, rather than having to search through from the start of memory to the point of interest. RAM is used to hold programs while they are being executed and temporary data. The contents of RAM are lost when the power is switched off.

ROM – Read Only Memory is used to store essential programs, such as Kickstart and many of the library routines. These do not have to be re-loaded each time the Amiga is switched on because ROM retains its contents without power. No new information can be written to ROM, hence the name Read Only.

Startup-sequence – A program which is executed every time the Amiga is switched on and after every reset. It sets up the system so that it is usable from Workbench, and may be customised by those who have unusual hard or software requirements.

the 'wonderful Workbench 2' software on my hard drive, bought a ROM switcher from Phoenix, and fitted my old 1.3.3 and the new 2.04 ROM. Since having had the Workbench 2 I have had a problem with the screen locking up and programs generally crashing about. *DPaint 4*, *Video Studio* (the Workbench 2.0 version), *Platinum Works*, *Pagesetter* (the free one on the May issue of *Amiga Format*) and other programs all do this. This is infuriating especially if I've just spent two hours drawing only to find screen locks up without warning.

I have heard a rumour that there are some bugs in Workbench 2, namely a screen hang and a white bar that appears on the top of the display when using certain titling programs such as *Video Studio* and *Scala*. Are these rumours true?

I phoned Commodore and was told to phone the dealer I had bought the computer from as I wasn't allowed to talk to the technical department direct. I explained that I bought the computer from one dealer and the upgrade from another, and that I didn't know which to phone. I was still not allowed to speak to Commodore's technical support department. I am appalled at the treatment I have received at the hands of Commodore.

Phoning the supplier of the upgrade produced no results. I was told that another chip in my computer was faulty, and that this fault only comes to light with Workbench 2. My question to you is can you help me? What is wrong? Is it the new Workbench?

Also, is there a way of being

able to boot from a choice of startup-sequences from my hard drive so I could choose 1.3 or 2.04?

Steve Flambert
Andover
Hants

I must say that I'm surprised with the problems you are having with Kickstart 2.04. I've been using Kickstart 2.0 in various versions for two years now, and it has got to the stage where I have delete my entire 1.3 partition from my machine as it never gets used.

All the machines at our office now use Kickstart 2 (except a couple of very early CDTV's that need special ROMs), these machines are used very heavily full-time running more applications than our Bank Manager cares to remember, and I have to say

that Kickstart 2.04 is one of the most stable operating systems I have used on any computer.

There are problems with old (and some not so old) software. Many programs written before Kickstart 2.0 became available have since been updated, so it is worth checking with suppliers for information on this.

There are known problems with *DPaint 4* running under Kickstart 2.0 on an unaccelerated Amiga (the palette editor will crash the machine after a few clicks). This is a bug, and has been fixed in version 4.1, available from Electronic Arts by the time you read this.

I have never come across problems with Workbench 2.0 like the rumours you have described. It sounds as if someone is getting confused with the problem on the Amiga 3000/A2320 Display Enhancer where the top half line is not deinterlaced.

It sounds to me from the symptoms which you are reporting that bugged software is causing your problems, not the Kickstart. Commodore's reluctance to get involved is understandable. Commodore sells its machines to dealers, which in turn sell the machines to the public.

The first port of call for any complaints, questions or queries about hardware should be to the dealer, and in my opinion dealers which know nothing about the Amiga, or try and pass the buck to Commodore shouldn't be in business.

A tip for buying things here: phone up the dealer, ask to talk to the technical department and ask the people there a question. If they are prepared to talk to you about problems not directly related to something you have bought from them, and they know what they are talking about, then there is more

chance of them helping you out if you have problems. Only buy from box shifters if you are prepared to sort these problems out yourself. Commodore has better things to do than make up for the lack of support given by many dealers.

And a quick way to execute two different startup-sequences for different versions of Kickstart...

Name your two startup-sequences as *Startup1.3* and *startup2.0*. Now type in the following as your file named startup-sequence:

```
version exec.library 36
if warn
execute "s:Startup1.3"
else
execute "s:startup2.0"
endif
```

Remember you will have to have two sets of C,L,Libs and Devs directories and assign them all from your scripts. **JR**

UNDER WRAPS



I need a word processor that will let me wrap text around imported pictures

created with *Deluxe Paint III*. I've looked at *Pen Pal* and *Wordworth*.

Are either of these packages any use on a 1Mb Amiga 500, as I understand that very little space will be left for text once an image has been imported?

Are there any alternative word processors, or must I increase my Amiga 500's memory? In which case, what are my options bearing in mind that I do not have a hard drive and am otherwise happy with a 1Mb machine?

David Ludgate
Lightwater
Surrey

Both the packages you mention can be used on a 1Mb Amiga, but you will be severely restricted as to what you can create and print. The only solution is more memory.

There are two ways to expand the memory of your Amiga 500: internally or externally.

Internal memory boards are less expensive, but they will require you to open up your Amiga, remove the 68000 CPU, insert the board into the CPU slot, and then put the 68000 CPU in the space provided on the memory board. Some internal memory boards also require you to run a fly-lead from the board to the Gary chip.

If reading the above paragraph made you go weak at the knees, then you'll have to buy an external memory box that slots into the expansion port on the left-hand side of the Amiga. **JW**

CALL THE ORACLE!



I am the owner of an Amiga A500 with a single external disk drive, Star LC200 printer and an Amstrad DMP2000 printer. What I would like to know is whether there is a Teletext adaptor available for the Amiga such as those available for the BBC Micro that we have at my school. If so, could you please tell me how much it costs and where I can buy it.

Also, I am thinking about purchasing a hard drive for my A500 to store games such as *Silent Service* and *F29 Fulcrum* as well as IFF files from *DPaint*. Which would you recommend?

Robin Little
Lanark
Scotland

You're in luck! A Teletext adaptor is available for the Amiga in the form of MicroText. It's available for £143.50 from MicroText ☎ 0705 595694.

If you're after a hard drive, then you won't go far wrong with a GVP Impact Series 2 drive. Available in either 52 or 105Mb configurations, the GVP drives are some of the fastest and most capable drives available for the Amiga. The basic 52Mb GVP drive costs £380 and is available from Silica Systems ☎ 081 309 1111. **JH**

AGNUS AGAIN



Come on guys, get your act together about this 1Mb Chip modification. In

June's *Amiga Answers Special* you answer to Fat agnus Low-Down was for revision 5 Amiga's: "The track you will need to cut is the one carrying the **EXRAM** signal..." Surely, this will just disable the trapdoor expansion as you said in reply to Memory Switching.

Later on in the *Amiga Answers* letter *Scan, Bang!* Isthiaq Ahmad writes in to say he has 1Mb Chip RAM with an 8371 Agnus. According to you and just about everyone else you need an 8372A Fatter Agnus, or don't you?

You don't seem to be able to make up your mind about the maximum access time the trapdoor expansion chips need to be either. Again, in *Scan Bang!* you say they need to be at least 120ns to work, yet in *Chip Ram Pipped* you reply "The early A501 used slow 120ns and 150ns chips..."

Looking inside my A500 I've got 16 150ns chips and 16 120ns access chip on the trapdoor. My questions are:

- Will the 120ns chips in the trapdoor expansion work OK for Chip mem?
- Do I need an 8372A Agnus?
- How easy is it to replace the Agnus chip holder as I've bent mine out of shape! What sort of price is it going to cost me to have it done 'professionally'?
- Will a fatter Agnus 8372A work OK with Kickstart 1.2 switched in?
- If I get a new Agnus, which pin do I have to isolate so as not to boot up in NTSC mode?

Stuart Burge
Maidstone
Kent

Unfortunately Chip RAM expansion is not just a matter of 'It works' or 'It doesn't work'. As many people have discovered, sometimes they get a system that 'sort of works', or 'sometimes works'. This is, quite often, due to RAM speeds. 150ns chips are really too slow to be reliable as Chip RAM, and you will find your machine will crash quite often with them.

120ns are usually OK, but on newer A500s they can be too slow. It depends on the revision of the board, the speed of the chips on the Amiga motherboard (two of our Amiga 500s have ridiculously fast 70ns chips fitted; we needed 80ns RAM for the Chip memory on these).

The **EXRAM** signal is indeed the right line to cut. It indicates that Expansion RAM (as opposed to Chip or Fast RAM) is fitted to the slot.

When disconnected normally, it disables RAM, but it needs to be disconnected when the RAM is used as Chip RAM.

You need an 8372A Agnus for 1Mb of Chip RAM. The 8371 can only address 512Kb of Chip RAM, no more.

The Agnus chip holder is a right pain to replace, so I suggest you take it down to your local TV repair shop and ask them to fix it. It isn't likely to cost more than a few quid.

As for Kickstart 1.2, there shouldn't be any problems with 1Mb of Chip RAM, although I've not tried this combination for long.

The pin to isolate is pin 41, marked as TEST in the Agnus 8370 diagram in the Amiga manual. *JR*

SAFE PARKING



About six months ago I sold my ageing A500 and bought a new A500 Plus. My A590 hard drive was attached to the new machine and all worked well.

However, I recently decided to repartition the drive: up until then I had used it as one 20Mb partition named Workbench. I wanted to partition the drive into three separate 'drives': DH0: as a 4Mb Workbench (SYS:) partition, DH1: as a 10Mb Program partition and DH2: as a 6Mb Data partition.

I've had the A590 for nearly two years and so setting this configuration caused no problems at all. The thing that's confusing me is the Park program.

As you know the A590 doesn't have auto-parking heads so that I have to run Park before I switch off. The manual states that if you add extra drives you need to modify Park to access the extra drives. It then goes on to say that each additional Partition must be added to the Partition list on the Park Icon.

What I'd like to know is do I need to add DH1: and DH2: to the list, as they are on the same drive, or is it only if you have extra drives called DH1: etc, that you need to alter the list?

Jim Campey
Brentford
Middlesex

You are correct; you do not need to set up Park to deal with more than one partition on the same drive. Each drive only has one set of heads, and once these are parked it's safe.

Incidentally, A590s are now supplied with SCSI drives that do autopark. Any SCSI drives you buy to add on to the A590 as external drives will autopark, so you shouldn't ever have to worry about changing the Park setup. *JR*

DIFFERENT PERSPECTIVE



Has anyone at Commodore realised what problems the lack of a numeric keyboard on the A600 is likely to cause? A lot of existing software already utilises the numeric keypad for some functions. Flight simulators use it to get different views and more importantly, *Deluxe Paint*'s perspective feature is totally inoperable.

Richard Lane
Dixons
Colchester

Looks like you spotted the deliberate mistake there, Richard! Come back A500 Plus - all is forgiven. Although this is mentioned in the manuals, I wonder if Commodore can justify this? *MS*

UPGRADABILITY



I used to own an A500 and had it for five years. I now want another Amiga but am considering an A1500 and an A2000. Please could you tell me what each machine has to offer over the A500?

Can I get a ROM switcher that will switch between version 1.2, 1.3 and 2.04 for either machine?

I have enough ICs for 13Mb of RAM, can you recommend a board to expand the A1500 or A2000 by 8Mb? The chips are 511000 ICs (I can't remember the access time but I think it's 120ns). I wish to have either a hard drive with 100Mb capacity or a read/write optical drive. Are all makes compatible with the board you recommend?

P Costigan
Plymouth
Devon

The main advantage of the Amiga 1500/2000 is the expandability. The Amiga 500 and 600 are not very expandable.

There are ROM switchers that will take three ROM chips, but I'd think twice about keeping 1.2 - it's obsolete now and won't work with autoboot hard drives.

There are no hard disk cards which will take the RAM chips you have: you will need a separate SCSI controller and memory card to make use of these chips.

The Commodore A2058, Microbotics 8-Up, ICD 2080, Golden Image and almost all the other RAM cards for the Amiga 2000 (with the exception of the Cortex and Applied Engineering cards) will take these chips.

I would then go for either the GVP or the Commodore A2091 hard drive controller, which are still good buys even if you are not using the RAM slots on the card.

I've tried out a few optical drives with the Amiga, and in general they will work, except you must use 512byte/sector media. Most suppliers (Panasonic in particular)

ship 1024byte/sector media by default as it has a larger capacity.

I have not yet been able to get Panasonic 128Mb rewritable Magneto-Optical drives to run on the Amiga. There are problems with the 128Mb media used in the Panasonic and IBM drives at the moment, some drives will not read/write disks used in other drives. It will probably take another month or two for these problems to get ironed out. *JR*

ALL ABOUT ECS



What do each of the ECS chips do? I have 1Mb of RAM in my machine, 512K of

which is a trapdoor expansion. Do I have Fast RAM or Chip RAM? Would having no fast RAM affect games, and what is it used for? If I am upgrading to 2.04, could I make do with just the Kickstart 2.04 ROM, or do I need the new Workbench too?

Scott Wright
Gwersyllt
Wrexham

There are two ECS chips, Denise and Agnus. These chips control the graphics and sound in your Amiga. The ECS adds several new features and screen modes that were not present in previous chipsets, such as the "productivity mode", and a high resolution mode: 1280x256 or 1280x512. Although you do not need a special monitor to see the 1280 pixel wide modes, you do need a VGA or MultiSync monitor to see the Productivity mode. If you are upgrading to 2.04, you need the entire upgrade kit, including the new Workbench, which will be available for around £70.00 from your dealer. *TS*

ASSEMBLING TEXT



I am currently writing an assembly language program that involves a large amount of text

handling. I have opened a screen and window under Intuition and, using PrintIText(), have managed to

get text on the screen. How can I clear this window of text or just wipe certain sections?

Philip Dando
Ecton Brook
Northampton

To clear an entire RastPort you could use the SetRast() graphics function. Alternatively you can use the RectFill() function and this would enable you to clear a specified area. Another approach would be to use the complement drawing mode (set the RP_COMPLEMENT flag in the IntuiText structure) because then a piece of text could be wiped out by re-writing it. Since you mention that your program is going to handle a lot of text it might in the long run be better to open a console device – this will allow your program to use sophisticated 'terminal style' text editing and display functions. **PAO**

A3000 UPDATE



I would like to update my Kickstart and Workbench disks to 2.04 on my Amiga

A3000. Do I require a ROM and new disks?

MJ Fuller
Newcastle On Tyne

Go to your local Amiga dealer, who will be able to give you the current version of the A3000 Workbench and Kickstart. (2.04/2.05). **TS**

NEVER THE SAME COLOUR



When I switch my machine on, all the colours are wrong. The startup screen is

pale blue where it should be white and the mouse pointer is black. I get the same effect if I remove all my external hardware.

Steven Cooke
Wigan

The short answer here is something is broken. The question though is, what? My gut reaction tells me your machine is at fault, but it could be your monitor. To check this try hooking the machine to a TV; if you get a perfect display – the monitor is broken, if not it's the machine. The only solution either way is to send the faulty unit to a reputable repairer. Try WTS Electronics at Luton ☎ 0582 491949. **MS**

WHICH LANGUAGE?



I have been programming for nine years, first on the VIC20, then on the

C64. In the latter years I used 6502 assembler wrapped around a Basic framework (writing utilities mainly). I bought a second-hand Amiga A500 seven weeks ago and now feel like a beginner again. I have seen references to AMOS, C, ARexx etc, but not having knowledge of these languages I cannot make a choice.

If AMOS is a form of Basic, what advantage is there in buying it when I already have the AmigaBasic that was supplied with the machine? Also, I'm spending a lot of time with the AmigaDOS script language – can I write real programs with it?

Roger Harris
Erdington
Birmingham

The AmigaDOS script language is not suitable as a general programming language – it simply isn't powerful enough. I also wouldn't advise you to take an interest in ARexx yet because while it is usable as a general purpose language its main advantages and use stem from its specialised communication-link facilities.

The Basic supplied with the A500 is fine for you to start with and, as you have some Basic experience,

you'll find it quite easy to come to terms with. AMOS is an excellent Basic style language with a good interface to things like Amiga graphics, but I'd stick initially to the Basic which came with the machine because, since you are interested in utility programming, you may find that you wish to move to a non-Basic language once you've coped with the initial Amiga learning curve hurdles.

The language of choice on the Amiga is C and there are a number of reasons for this: a lot of the Amiga's operating system was written in C and so most of the official Amiga system documentation was written with C programmers in mind. It is also a small language which is reasonably easy to learn. Having said that I ought to point out that whilst C itself may not present many problems – the Amiga itself will! The operating system is very complex and it will be unlike anything that you've dealt with in the past. There is a lot to learn and, to be honest, you, like the rest of us, will be likely to feel like a beginner for a couple of years at least. Good documentation is essential and eventually you'll need the Addison Wesley ROM Kernel Manuals, and the Bantam Books AmigaDOS manual. You'll also need a general C book (*The C Programming Language* written by Kernighan and Ritchie and published by Prentice Hall is a must) and one or two of the 'softer', tutorial-style, Amiga orientated C guides will not go amiss either – have a look at some of the offerings in your local bookshops or computer shops.

If you do decide to learn C, and want to make rapid C progress, I'd advise you to steer clear of the public domain C offerings and go for a good commercial C compiler such as *Lattice/SAS C* – you wouldn't regret it because the package, and the documentation, is brilliant (you will however need to get a second drive to avoid large amounts of disk swapping). **PAO**

START UP VIDEO



I would like to get into home video production. I understand how a

genlock works for titling purposes, but what are programs such as *Scala* used for? Are there any books I can obtain to help me start up in this area of Amiga use? How good is Gold Disk's *Video Director*, and which genlock below £200 is the best one?

Phillip Cheshire
Rotherham
South Yorks

Home video production can encompass quite a few things –

recording, editing, sound and graphics – the Amiga being just part of the video-makers tool kit. Programs such as *Scala*, *Home Titler*, *TVText*, *Broadcast Titler*, *ProVideoPlus* and others (including *Deluxe Paint*) all make life easier for the video maker by allowing graphics, including titles and animations, to be prepared and played back. By feeding the Amiga output through a genlock these graphics can be recorded to video tape, either mixed with video or on their own. Such programs are the graphics producer's stock-in-trade.

As for books, unfortunately no, I can't think of any. In fact, I often look in my local library and bookshops for books about video and they are usually out of date or either so general or so technical as to be of little use. I suppose this is inevitable in these times of rapidly changing technology.

Like most of us, you'll have to pick up your skills the hard way – through experimentation and wide ranging reading, from *Amiga Shopper* through to video magazines. Unless someone feels like paying me to write a book, of course! Alternatively, there are a number of video tapes available which deal with Amiga and video – check out the adverts in Amiga magazines – even American ones, as some of these tapes are available in PAL format.

From the reviews I've seen on *Video Director* it would appear to be a very good buy – if you have the right video equipment to go with it. Personally I've not had chance to use it yet, so I can't comment from experience, though I understand that it isn't completely frame accurate and that it can only do assembly editing, rather than the more flexible insert method.

Regarding genlocks, there's not too much choice below £200. For features there's the RocGen Plus, which has improved since I reviewed it. There's also the tried and trusty Rendale 8802, the MiniGen and the original RocGen. Any of these will be sufficient for home video work, though I'd go for either the RocGen Plus (which also has cross-fading and signal selection) or the Rendale as both of these pass the RGB video through to your Amiga RGB monitor, which is a very handy feature if you still want a clean RGB screen to work on, rather than a fuzzy composite one. **GW**

MODULAR C



I am trying to write a modular C program but although I can create individual objects and link them together

continued on page 44

JARGON BUSTING • JARGON BUSTING

Assembly language – The programming language which is native to a particular processor. Assembly language is written as a series of short words known as mnemonics – these are translated directly into numbers for direct processing by the computer's micro-processor. Writing in assembly language ensures that a programmer can produce the most efficient and speedy code.

Basic – Beginners' All-purpose Symbolic Instruction Code is a high-level programming language, much favoured by micro-computer users. It combines power with ease-of-use. A popular version of Basic on the Amiga is AMOS, which makes it particularly easy to deal with graphics.

C – A compiled language designed primarily for systems programming. It was used to write much of the Amiga's operating system, and is used in the writing of many Amiga applications.

Genlock – A way of slaving one video source (eg Amiga) to another (eg video tape) in order to synchronise their signals to allow stable wipes, mixes and other effects including overlay between the two sources.

POWER

COMPUTING

Power Scanner v2.0



Features

100-400 DPI scanning resolutions
64 Greyscales
Thru'port for printer

Software

Full screen image editor
Interlace mode on/off
Edit true greyscale & colour images
Fully multi-tasking

Editing

Cut rectangle, cut lasso, crop, flip, rotate, scale,
draw, lines, circles, boxes, ellipses, freehand,
zoom mode

Scanning

Unique 'True feel' real time scan mode - know
instantly if you are scanning the image too quickly
Automatic selection of 100-400 DPI
Produce true greyscale images



Actual Amiga Screen Shots
Amiga can only display 16 greyscales

£99 inc. VAT
GREYSCALE

£239 inc. VAT
COLOUR

PC880B Power Drive



£65

Viruses, diskswapping, clicking drives, disks which
won't back up. Is there no end to the whingeing
of the Amiga user?

At Power, we want to tell you just where you can
stick your disks and worries. In fact we'll tell you. The
slot in this picture belongs to our PC880B, the first
intelligent disk drive. Insert a disk.

Now you can back up at lightning speeds using
the inbuilt Blitz Amiga hardware*, with free soft-
ware, (even if the disk is atari or PC) and if your
computer has a virus the PC880B will stop it being
written to the bootblock of any of your drives,
though you can still save files as normal.

When you do not want these features, switch them
off and the PC880B will sit quietly, without click-
ing, pretending to be simply an extra drive.

The PC880B, the only drive to introduce Blitz
Amiga, the Power anti-click device and to combat
viruses, is only available direct from Power, priced
at just **£65**

We have noticed how pricey unintelligent drives
are. Perhaps, it's your turn to tell people where to
stick it.

*Due to the precision nature of the Blitz copier high density disks may be required
with some internal drives

Dual Drive



Blitz copier built-in (switchable)
Virus Blocker built-in (switchable)
Anti-click & PSU included

£125

Blizzard Turbo Memory Board for A500/A500+

Expand up to 8MB (0k installed)
Memory & 68000 CPU can run with doubled clock
rate of 14.28MHz
Fast 68000 processor already installed on board
Fully autoconfiguring, DMA compatible fast RAM
Optical 512K shadow RAM on extra memory bank
for shadowing the operating system out of ROM or
from disk

£169

New Kick-Off Automatic ROM sharer

Kick-Off is the latest Amiga add-on from Power.
One of the most advanced Kickstart ROM sharers
available, a clever design onto a small reliable board.
Fits these Amigas - A500, A500+, A600, A1500/2000
Kickstart ROM can be selected from the keyboard
No messing about with switches
Only one compact board to plug-in
No "CIA adaptors" or other trailing wires
Jumper to select which ROM boots on switch-on
Compatible with old Amiga board revisions
Simple internal fitting*

*Kick-Off requires the lid to be removed from the Amiga. This may invalidate your warranty

ROM share only **£19.95** ROM share inc. Kickstart v1.3 **£49.95**
ROM share inc. Kickstart v2.04 **£55** ROM share inc. v1.3 & v2.04 **£85**

Supra Modems

Supra Fax Modem Plus **£136**
Supra Fax Modem v32 BIS **£295**
Supra Modem 2400 (External) **£91**
Supra Modem 2400 Plus (External) **£111**
Supra Modem 2400 Ziplus (Internal) **£134**

Name

Description

Address

Postcode

Credit Card No.

Telephone No.

Expiry Date

System Owned

Signature

I enclose a cheque/PO for
£

Make cheques payable to Power Computing Ltd
Fill in your order form and send it to:
Power Computing Ltd
Unit 8 Railton Road
Woburn Road Industrial Estate
Kempston Bedford MK42 7PN

Ring your credit card order on **0234 843388**
or fax on **0234 840234**

All prices include VAT, delivery and are subject to change.
Specifications are subject to change without notice.
Next day delivery **£4.50** (U.K. mainland only) All trademarks acknowledged



THE ALL NEW AMIGA 600 PACK ONLY

£349.95

- ★ On-site maintenance
 - ★ Kickstart/Workbench 2.05
 - ★ Built-in TV/Modulator
 - ★ Smart Card Slot
 - ★ IDE Hard Disk Controller.
- (Optional 20Mb internal hard disk)

A600 HD Pack: As above but featuring 20Mb Hard Disk

Exclusive to Futureworld

A600 Pack

- A600 (inc DPaint III & game)
- Astra Ten Games Pack
- GFA Basic

RRP £399.99
RRP £229.78
RRP £49.95
TOTAL RRP £679.72

But yours for an unbelievable

TOTAL RRP £779.72

But yours for an unbelievable

£499.99

NB: HD VERSION DOES NOT INCLUDE DPaint III OR GAME

ALL OUR A500 PLUS COME WITH A MASSIVE 2 MEG OF RAM

AMIGA 1.3 MEGAPACK - Stocks VERY limited -

AMIGA 1.3 VERSION COMPUTER
Only version guaranteed to run all Amiga software

RRP £349.95

1 MEG UPGRADE BOARD
Increases your A500 to a massive 1 Megabyte of RAM

RRP £29.95

WICKED 50 GAMES PACK
50 great games to get you going!

RRP £24.95

FIGHTER MICROSWITCH JOYSTICK
Essential to play your 50 games

RRP £7.99

QUALITY MOUSEPAD

RRP £6.99

TAILOR MADE DUSTCOVER

RRP £6.99

16 NIGHTS HOLIDAY ACCOMMODATION
• PLUS • PD DISK PACK CONTAINING

Wordprocessor • Spreadsheet • Database • Virus Killer • Backup Utility

TOTAL RRP £426.82
But yours for an unbelievable

£299.95

GAMESMASTER PACK

A500+ CARTOON CLASSICS PACK

Complete with Bart Simpson • Captain Planet • Lemmings • D Paint III

RRP £399.95

2 MEG RAM BOARD (latest blue pcb design)

RRP £59.95

ASTRA TEN GAMES PACK

Datascene • Dungeon Quest • E Motion • Grand Master Slam • Kid Gloves
Powerplay • RVF Honda • Shuttlepack Café • Soccer • Tower of Babel
(NB All games individually packaged)

RRP £229.78

WICKED 40 GAME PACK

40 great games to get you going!

RRP £24.95

2 FIGHTER MICROSWITCH JOYSTICKS

Not one but two quality joysticks

RRP £15.98

QUALITY MOUSEPAD

RRP £6.99

TAILOR MADE DUSTCOVER

RRP £6.99

• PLUS • PD DISK PACK CONTAINING

Wordprocessor • Spreadsheet • Database • Virus Killer • Backup Utility

TOTAL RRP £744.59

But yours for an unbelievable...

£399.99

PROFESSIONAL MUSIC PACK

A500+ CARTOON CLASSICS PACK

Complete with Bart Simpson • Captain Planet • Lemmings • D Paint III

RRP £399.95

2 MEG RAM BOARD (latest blue pcb design)

RRP £59.95

MUSIC X 1.1 (latest version)

Renowned as the best professional package on the market

RRP £149.95

QUALITY MIDI INTERFACE

Now you can hook up to any midi keyboard

RRP £34.95

2 x MIDI CABLES

Not one but two quality cables

RRP £13.98

QUALITY MOUSEPAD

RRP £6.99

TAILOR MADE DUSTCOVER

RRP £6.99

• PLUS • PD DISK PACK CONTAINING

Wordprocessor • Spreadsheet • Database • Virus Killer • Backup Utility

TOTAL RRP £672.76

But yours for an unbelievable...

£399.99

AMIGA CDTV SPECIAL OFFER

Save £200 and trade in your Amiga A500 for Commodore's latest Multimedia pack:
(Normal RRP £599.99):

- CDTV Player
 - Keyboard
 - Floppy Disk Drive
 - Mouse
- + Free GFA Basic (£79.99)

OFFER RUNS UNTIL THE END OF SEPTEMBER. CALL NOW FOR DETAILS

£399.99

AMIGA 1500 CARTOON CLASSICS SUPERPACK

NEW AMIGA 1500 featuring Workbench/Kickstart 2. The Works. D Paint III. Home accts etc RRP £699.95

ASTRA TEN GAME PACK 10 individually packed games (see A500 Gamesmaster pack for details) RRP £229

GFA BASIC Essential for basic programming RRP £49.99

CARTOON CLASSICS SOFTWARE

Bart Simpson Vs Space Mutants • Lemmings*

Captain Planet RRP £79.97

2 FIGHTER JOYSTICKS RRP £15.98

QUALITY MOUSEPAD RRP £6.99

NB: This machine requires a TV/Modulator (£24.95) if it is to be used with a television

TOTAL RRP £1082.62

But yours for an unbelievable

£599.95

MEMORY DRIVES & SCANNERS

512K RAM EXPANSION WITHOUT CLOCK £19.95 **WITH CLOCK** £24.95

1.5 MEG EXPANSION (Not Plus compatible) £79.95

1 MEG EXPANSION (Gives your A500 plus a massive 2MB) £39.95

1 MEG EXPANSION WITH THRU-PORT £49.95

NEW 8 MEG RAM BOARDS FROM POWER Complete with Thru-Port Populated board
with 0Meg RAM £99 • 2 Meg RAM £129 • 4 Meg RAM £189.95 • 8 Meg RAM £299.95

DIRECT A500 REPLACEMENT DRIVE with instructions £44.95

POWER PC880E Robust slim drive with anti-click £49.95

CUMANA CAX 354 SLIMLINE DRIVE £54.95

POWER PC 880B with Blitz/Virus hardware £69.95

POWER PC880B+ X-COPY PROFESSIONAL £99.95

DUAL POWER PC880B complete with Power supply £124.95

GVP 52 MEG HARD DRIVE WITH RAM EXPANDABLE TO 8MB

0 Meg RAM £379.95 • 2 Meg RAM £429.95 • 4 Meg RAM £499.95 • 8 Meg RAM £679.95

GVP 105 MEG HARD DRIVE WITH RAM EXPANDABLE TO 8MB

0 Meg RAM £579.95 • 2 Meg RAM £629.95 • 4 Meg RAM £729.95 • 8 Meg RAM £899.95

POWER SCANNER WITH VERSION 2.0 SOFTWARE £99.95

UPGRADE KIT FOR NON POWER SCANNER UNITS

Complete with hardware interface and new version 2.0 Software £49.95

MONITORS / TVs

All our monitors/TVs come with the following value pack worth over £90 COMPLETELY FREE!
Value pack comprises:-

GFA BASIC

The most comprehensive programming language RRP £49.95

10 DS/DD DISKS RRP £9.99

10 CAPACITY STORAGE BOX RRP £4.99

SCART LEAD TO YOUR COMPUTER RRP £9.99

CLIP-IT PAPER HOLDER RRP £8.99

MOUSE HOUSE RRP £6.99

• PLUS • PD DISK PACK CONTAINING

Wordprocessor • Spreadsheet • Database

Virus Killer • Backup Utility

GOLDSTAR 14" TV/MONITOR

Complete with remote control and sleep timer

Incredible value for money

TOTAL RRP WITH VALUE PACK £325.79

PHILLIPS 3332 15" FST TV/MONITOR

High quality FST TV/Monitor with dedicated monitor output

infra red remote controlling a host of features

Complete with 2 year guarantee

TOTAL RRP WITH VALUE PACK £330.75

PHILLIPS 8833/II STEREO COLOUR MONITOR

Simply the most popular monitor on the market

FREE F19 Stealth Fighter

* 12 month on-site service warranty

TOTAL RRP WITH VALUE PACK £390.75

PHILLIPS 2331 15" FST TV/MONITOR

Same specification as 3332 but with Teletext

Full range 3 speaker sound output

Incredible value for money

TOTAL RRP WITH VALUE PACK £360.75

COMMODORE 1084S STEREO COLOUR MONITOR

Dedicated Commodore monitor

Colour co-ordinated to complement your Amiga

TOTAL RRP WITH VALUE PACK £390.75

But yours for an unbelievable

£229.95

But yours for an unbelievable

£269.95

But yours for an unbelievable

£269.95

But yours for an unbelievable

£239.95

But yours for an unbelievable

£239.95

But yours for an unbelievable

£239.95

But yours for an unbelievable

£239.95

But yours for an unbelievable

£239.95

But yours for an unbelievable

£239.95

But yours for an unbelievable

£239.95

But yours for an unbelievable

£239.95

But yours for an unbelievable

£239.95

But yours for an unbelievable

£239.95

★ EXTRA SPECIAL OFFER ★
WHILE STOCKS LAST

Future World
Computers

ALL PRICES INCLUDE VAT & COURIER DELIVERY

STAR PRINTERS

All our Star Printers now come with the following value pack worth £34.96 COMPLETELY FREE.

QUALITY COMPUTER CABLE RRP £9.99
UNIVERSAL PRINTER STAND RRP £9.99
200 SHEETS CONTINUOUS PAPER RRP £4.99
TAILOR MADE DUST COVER RRP £9.99
16 NIGHTS HOLIDAY ACCOMMODATION
PLUS PD DISK PACK CONTAINING
Wordprocessor • Spreadsheet • Database •
Virus Killer • Backup Utility

STAR LC20 MONO PRINTER

9 Pin Dot Matrix 180/45 cps
TOTAL RRP with value pack £268.01

But yours for an unbelievable **£149.95**

STAR LC200 COLOUR PRINTER

9 Pin colour 185/45 cps
TOTAL RRP with value pack £339.95

But yours for an unbelievable **£209.95**

STAR LC24-200 MONO PRINTER

24 Pin mono printer 220/55cps
TOTAL RRP with value pack £386.29

But yours for an unbelievable **£249.95**

STAR LC24-200 COLOUR PRINTER

24 Pin colour printer 220/55cps
TOTAL RRP with value pack £445.04

But yours for an unbelievable **£299.95**

STAR SJ48 INKJET PRINTER

High speed/quality mono printer, 100cps (LQ)
TOTAL RRP with value pack £379.96

But yours for an unbelievable **£244.95**

SERIOUS SOFTWARE

WORD PROCESSORS

QUICKWRITE basic but efficient and easy to use £59.99
PENPAL Ideal for both beginners & experienced users £79.99
WORDWORTH Industry standard, the best! £129.99

DATABASE

K-DATA Affordable, reliable & easy to use £51.99
SUPERBASE PROFESSIONAL £249.95

The ultimate, you can't get better

SPREADSHEET

K-SPREAD 2 Simple & easy to use £63.99
K-SPREAD 3 Enhanced version of above £81.99
MAXIPLAN Well known powerful spreadsheet £69.99
ADVANTAGE Powerful package for business users £99.99

UTILITIES

PERSONAL FINANCE MANAGER

Get your finances in order!

£39.99

HOME ACCOUNTS 2

Suitable for home & small businesses

£54.99

DEVPAC 3 Extremely powerful assembler

£69.99

GRAPHICS

AMOS THE CREATOR Become a budding gamesmaker £49.99

WALT DISNEY ANIMATION STUDIO

every cartoonists dream

£99.99

MUSIC

MUSIC X 1.1 Special purchase whilst stocks last £49.99

BARS & PIPES Top of the range for the professional £148.99

SUPER ABC PERIPHERAL PACKS

PACK B

1/2 MEG UPGRADE BOARD RRP £29.95
2 FIGHTER JOYSTICKS RRP £15.98
40 CAPACITY LOCKABLE DISK BOX RRP £9.99
10 DS/DD 3.5" DISKS RRP £9.99
TOTAL RRP £65.91
SUPER VALUE PACK PRICE **£34.95**

PACK A

QUALITY REPLACEMENT MOUSE RRP £19.99
SOLID PERSPEX DUST COVER RRP £12.99
QUALITY SEMI-SOFT MOUSEMAT RRP £7.99
TOTAL RRP £40.97
SUPER VALUE PACK PRICE **£24.95**

PACK C

1 MEG EXPANSION BOARD RRP £59.95
40 CAPACITY LOCKABLE DISK BOX RRP £9.99
10 DS/DD 3.5" DISKS RRP £9.99
3.5" DISK DRIVE CLEANING KIT RRP £7.99
TOTAL RRP £87.92
SUPER VALUE PACK PRICE **£44.95**

PROFESSIONAL AMIGA REPAIRS

"Simply The Best" Commodore authorised repair centre

FREE COLLECTION & DELIVERY BY COURIER Make one simple phone call and leave the rest to us!

GUARANTEED 7 DAY TURN AROUND We guarantee to return your computer

WITHIN 7 days of collection

FULL OVERHAUL INCLUDING OVER 50 DIAGNOSTIC CHECKS Your Amiga will look as good as new

3 MONTH COMPREHENSIVE GUARANTEE Our engineers work to the highest standard

ALL INCLUSIVE PRICE We won't con you with hidden extras

FREE 50 GAMES SOFTWARE PACK

For a limited offer we will give you a 50 games pack completely free!

ALL FOR THE
INCREDIBLE PRICE OF **£59.95**

NB Personal callers in to one of our stores may deduct £10 from the above price.
We reserve the right to refuse computers that have been tampered with or are beyond economical repair. In this instance a nominal £10 charge will be made to cover carriage costs.

EXTEND YOUR WARRANTY TO A TOTAL OF 1 YEAR FOR ONLY AN ADDITIONAL £20.00

ORDERING MADE EASY



BY PHONE

Simply call our Head Office quoting your Access/Visa number on
0234 218060 (5 lines)



BY CALLING PERSONALLY

Simply call in to your nearest FutureWorld store where our fully trained personnel will be more than happy to deal with your requirements.

BY POST



Make cheques, Building Society drafts or Postal Orders payable to
FUTUREWORLD COMPUTERS LTD
UNITS 25-27 SERGEANTS WAY
ELMS INDUSTRIAL ESTATE BEDFORD MK41 0EH

Please write cheque guarantee card number on the reverse of cheque to ensure same day clearance. Cheques without a card number subject to 10 days clearance.



REMEMBER ALL PRICES ARE INCLUSIVE OF
VAT & COURIER DELIVERY (UK Mainland only)
SATURDAY DELIVERY £10.00.

FINANCE

Finance available to suit your specific needs. Written details on request
Instant credit is available in all FutureWorld stores

PREMIER GOLD CARD

- 7 day money back guarantee on goods purchased if not completely satisfied (subject to goods being returned in mint condition)
- 30 day exchange for new policy should a fault occur
- 1 year guarantee giving free collection and delivery service should a fault occur
- Exclusive Premier Gold Card with Personal Membership Number entitling you to special offers
- All this for only £19.95 per item purchased

1 YEAR GUARANTEE

For the whole guarantee period, warranty service will be completely free of charge

TECHNICAL SUPPORT/ON SITE ENGINEERS

Being authorised service centres for AMSTRAD, COMMODORE & STAR, we are equipped to deal with the majority of queries. Lines open 3.00pm to 5.30pm

FULLY COMPUTERISED ORDERING SYSTEM

This enables our telesales staff to provide up-to-the-minute stock information coupled with efficient dispatch

FULL TESTING PROCEDURE

All computer hardware is tested prior to dispatch maintaining our motto;

Simply the
BEST

All goods subject to availability
All prices correct at time of
going to press

E & OE



YOUR NEAREST FutureWorld STORE

BASILDON MEGASTORE - GRAND OPENING SAT 8th Aug
12/13 South Walk Basildon Telephone 0268 270013

BEDFORD MEGASTORE
1 The Howard Centre Bedford Telephone 0234 212460

NORTHAMPTON
1-7 College Street Northampton Telephone 0604 33996

WELWYN GARDEN CITY
16 Church Road Welwyn Gdn City Telephone 0707 390029

WATCH THIS SPACE
More stores opening soon!

continued from page 40

making them work in harmony is another matter. So, why and when is the extern keyword used? If I have a header with defines and structures in it how can I include it in each module without getting multiple definition errors? Also, is there a linked list that contains all of the Amiga system's assigned device names?

Graham Allwood
Knaresborough

The extern keyword is used to tell the compiler that the item in question has been defined elsewhere and you'll find reasonable explanations of extern use in most general C books. Basically you need to define the items in just your main program module and then use extern declarations in the remaining modules. With things like global variables you can use a preprocessor trick so that the SAME header serves both purposes - look at this header example:

```
#include <exec/types.h>
#include <exec/memory.h>
#include
<intuition/intuition.h>
#define SCREENPLANES 3
#define SCREENWIDTH 640
#define SCREENHEIGHT 256
BOOL allocate_resource (
    UBYTE function_number);
void deallocate_resource (
    UBYTE function_number);
struct Screen;
*OpenScreen(struct
NewScreen *);
struct Window;
*OpenWindow(struct
NewWindow *);
#ifdef ALLOCATE_GLOBALS
#define PREFIX
#else
#define PREFIX extern
#endif
```

JARGON BUSTING • JARGON BUSTING

Bitplane/bitmap - A bitplane is an area of memory where every binary bit corresponds to a pixel on the screen. One bitplane represents a monochrome image, several can be overlayed (a bitmap) to represent a colour image.

PostScript - A powerful mathematical language used to describe graphics and text images to compatible printers. Because it does not rely on a pixel system, objects so described can be scaled and rotated without distortion or loss of detail.

Script - Meta-AmigaDOS command built from other AmigaDOS commands. More usually referred to as a batch file on other systems.

Shell - A method of communicating with the Amiga's operating system via the keyboard rather than the more usual mouse and windows method of Workbench.

Sprite - A graphical shape, moved as a whole around the screen. Some sprites are manipulated by the Amiga's blitter, meaning that they can move very smoothly and rapidly, without erasing the information beneath them as they travel across the screen.

PREFIX struct IntuitionBase ↓

```
*IntuitionBase;
PREFIX struct Screen;
*global_screen_p;
PREFIX struct Window;
*global_window_p;
PREFIX BOOL global_exit_flag;
```

If I define ALLOCATE_GLOBALS prior to including the above header it will generate code lines such as:

```
BOOL global_exit_flag;
```

If I don't define ALLOCATE_GLOBALS the same header generates the equivalent extern references, for example the line just mentioned becomes:

```
extern BOOL global_exit_flag;
```

It's this later form that would be used in all modules except one. The advantage of this approach is that you only need to maintain one header file rather than have separate

files for variable definitions and variable declarations.

On your last point - there is a structure, called DevInfo, that AmigaDOS uses to maintain a list of all known device and disk volume names and you'll find details in the Bantam Books' *AmigaDOS Manual*.
PAO

SHARING IT OUT



I have an Amiga A500 Plus with a ROM sharer which is activated using the

TAB key during switch on, or after a re-boot. Normally it just boots Kickstart 2, holding the TAB key down forces the machine to start with Kickstart 1.3. I have an A590 hard drive which I would like to set up so I can use both operating systems. I suspect I may have to set up another partition which will sense that the Amiga is booting with the 1.3 ROM when the TAB key is pressed and boot Workbench 2.0 if not.

John Walker
Gateshead
Tyne and Wear

The simple answer is that you can have two partitions on your hard drive, but this is not necessary. The Eclectic Startup-sequence in *Amiga Shopper* 16's AmigaDOS column will do the job for you.

Alternatively, you can use the software supplied with your A590 to set up two partitions - however, this will destroy any information already stored on the hard disk. In this case you should copy Workbench 1.3 to the first partition and Workbench 2 to the second one. When Workbench 2 starts to boot, hold down both mouse buttons and select the appropriate partition from the boot menu. Workbench 1.3 should boot

normally by holding down the TAB key. You'll find more details on the boot menu in the *Little Blue Workbench 2.0* book, which you'll find in our offer pages or down at your local library. **MS**

FINDING FAULT



Is it possible to get an A500 Diagnostic system? I have phoned a few Amiga repair places, but they all seem to use a system costing £5000. Is there anything cheaper? Please don't suggest diagnostic disks because the Amiga might be working enough to load the disk.

Chris Palmer
Brighton
East Sussex

A hardware solution would be very expensive indeed, and would not really be necessary. A disk based diagnostic program would work fine, as once the diagnostic program had loaded it would be able to check all of the Amiga's functions, such as the disk drive and ports. This is certainly the cheapest way of doing this. I would suggest you look at some PD libraries to see if there is such a program available. **TS**

TOO BIG TO HANDLE



My problem is that I want to output a file in PostScript format using either

Professional Page 2.1 or *PageStream 2.1* so that I can transfer this file to a PC formatted disk and then print it out on a PostScript laser printer connected to a PC (which is 30 miles away).

I have saved a *Professional Page* document to hard disk as a PostScript file, but if the document includes a bitmap graphic the PostScript file becomes too big to copy on to an 880k Amiga disk, let alone a 720K PC disk.

So how do I get my PostScript file from the Amiga to the PC? And which PC program to I use to send the PostScript file to the laser printer?

RS Jeffery
Castle Donington
Derby

There are several ways, although the PC will need to have a hard drive whichever way you do it.

The quickest and easiest way is by telephone, provided the Amiga and the PC both have a modem attached. If you're not into comms then this is probably not a good idea as it'll take a while for you to learn how it's done. It's not a particularly difficult job to accomplish, it's just that anything new takes a while to master.

EMULATING THE ARCHIE



I am currently thinking about what A-Levels I should take and one of the options available to me is A-Level Computing. I have had an Amiga for many years now and I'm very satisfied with it, but unfortunately my school only has

Archimedes computers. Can you please tell me whether there is any sort of emulator available which will enable me to run Archimedes software on my Amiga. If so, how much does it cost and where can I buy it from?

Gary Chessun
Uxbridge
Middlesex

An Archimedes emulator for the Amiga? Now there's a novel idea. Although it pains me to admit it, it has to be said that a standard Amiga isn't really capable of emulating the Archimedes. The Archie's RISC-based processor is considerably faster than the Amiga's poor old 68000, so even if someone managed to implement the RISC instruction set, the speed of the emulator would be very, very slow indeed. All you can really do is use Amiga-based applications and then transfer your work files to the Archimedes. **JH**

You could try compressing the file using one of the standard shareware archiving programs like Arc, Zoo, Zip or LhArc. There are PC equivalents of these programs that will de-archive files archived on the Amiga – although the programs themselves are PC and Amiga specific, the archive data format is standard so files are portable. However it is unlikely that any archiver will be able to compress the bitmap part of the file by much, so you may still be left with an archive that won't fit on a 720K floppy.

What you need is a program on the Amiga that will split the PostScript file into 720K (or smaller) chunks, and a program on the PC that will join them all back together again, thus perfectly re-creating the original PostScript file. Such programs exist, they are called Splitz and Joinz and they come as part of ASDG's Art Department Professional package. Amiga, MS-DOS and Macintosh versions are supplied.

The easiest way to send the file from the PC to the laser printer is via the MS-DOS command line. Something like COPY DRIVE:PATH\FILE LPT1: will do the trick. If you want to load the PostScript file into a PC DTP program and then print it, you should produce an EPS (Encapsulated PostScript) file on the Amiga. **JW**

MAKING SCRIPT FILES



How do I set the script flag on a file and where does it have to be to execute

if you just type the name into the shell and press [Return]?

Also, I want to move on to Pascal – is there a public domain Pascal compiler available?

**Chris Mot
Kent**

To set the script flag use the AmigaDOS 'Protect' command with the +s flag option like this:

```
protect df0:filename +s
```

As long as the file in question is in the search path AmigaDOS will find it and execute it when you type its name. There is a public domain Pascal compiler available – it is called PCQ and you'll find it in most PD libraries. **PAO**

AMIGADOS UNLIMITED



a) How do I get the Shell to work from RAM so as not to insert the Workbench

2 disk again, so as to edit other disks copy, format and so on?

b) How do I add sound to my DPaint anims? Preferably using something in the PD as I am on a very tight

budget. Do I need any extra hardware? Is there an animation and sound package as good as DPaint III even at full price?

c) I think my animations are pretty good, how do I go about getting them placed in the PD?

**A Graham
Benwell
Newcastle-upon-Tyne**

a) This is quite easy to do but it will take some time because there are quite a number of files to copy across – even with AmigaDOS 2. (Editorial note: the advice given here is for Workbench 2 only). The simplest solution is to insert the following two commands into S:User-Startup:

```
FAILAT 21
SPAT RESIDENT C:#?
SPAT RESIDENT
SYSTEM/~(#?.info)
```

The second command will produce a slight error (Object is not of required type) but this is not important. This will add all the AmigaDOS and system commands to the resident list. A slightly better solution would be to make all the commands resident in turn. You can use a couple of simple commands like this from the Shell:

```
LIST >T:Temp C: LFORMAT
"RESIDENT %S%S"
LIST >>T:Temp SYS:System
LFORMAT "RESIDENT %S%S"
ED T:Temp
```

This will bring up a script which will look something like this:

```
RESIDENT C:Assign
RESIDENT C:Copy
RESIDENT C:CPU
RESIDENT C:LoadWB
RESIDENT C:MagTape
```

You should search through this list and delete the lines containing commands you don't want to make RAM resident: LOADWB, MAGTAPE, CPU, SETMAP etc. Once you have done this, you should copy the file back to floppy disk like this:

```
COPY T:Temp TO S:BigDOS
```

and then edit the User-Startup to read:

```
EXECUTE S:BigDOS
```

b) I don't know of any PD programs that will do this, but there are certainly commercial animation sequencers such as *The Director* and *Fantavision*. Electronic Arts has its own DPaint compatible animation system called *Deluxe Video III* which supports sound and animation.

MORE PEN PAL FONTS



Simple question. Can you add one set of fonts on one disk to a set of fonts on another?

I use Pen Pal 1.4 and find it an excellent word processor. The resident font list is a bit limiting, however, so I end up using the Workbench font list via the Change Font List feature. I would like to use both lists of fonts in one document, but it seems Pen Pal won't let me.

Programming is still a mystery to me, but I read in your magazine about copying files from one disk to another, so I tried a few commands in a Shell and managed to copy the Workbench fonts on to the Pen Pal disk. The font list displayed all the fonts combined, but I found I couldn't use them.

Can you help?

**T Devil
London W13**

What's happened is you've copied all the '.font' files on to the Pen Pal disk, but you've neglected to copy the fonts themselves. These are the directories, and the contents of those directories, in the FONTS directory on the Workbench disk.

The command you need to issue from a Shell is :

```
COPY FONTS: PENPAL:FONTS/ ALL
```

assuming that you have booted from Workbench and your Pen Pal disk is named PENPAL. (If it's named something else, replace the PENPAL bit with whatever its name is).

Keep in mind that the fonts on a standard Workbench 1.3 disk take up about 100K of disk space. **JW**

c) You can get your animations in the public domain just by sending a copy to a couple of the larger PD software houses. However, I would advise anyone wishing to do this to include a READ.ME text file stating the work is: a) Original and b) Freeware. Placing something in the public domain allows people to do what they want with it because you relinquish your copyright. By making work Freeware means you retain copyright, although the software can be distributed freely. Also note, you may have to acknowledge the producers of any animation players etc which you used in the production of your work. **MS**

USING SPRITES



I am in the process of producing a computer game in assembler. I know I don't want to

use the hardware sprites, but I don't know how to use any others. Are there any books or PD programs that could help me?

**Josh Lury
Melbourn, Near Royston
Herts**

The Amiga supports two types of sprites, hardware sprites and BOBS. Hardware sprites are subject to some basic limitations; you can only have eight of them, they can only be 16 pixels wide and have three colours. Using some of the more advanced features of the sprite hardware, you can make 16 colour

sprites, by joining two together. Your other option is BOBS.

A BOB is a "Blitter object", quite simply, it is a small graphic which the Amiga's blitter will place to the screen. This is far more complex for the programmer, as you will have to "remember" what is on the screen behind the BOB, so that when you move it, you can repair what was underneath it. You don't have to worry about this with hardware sprites, as the Amiga treats them as separate little screens all of their own. As a final note, you can actually place sprites to the screen yourself using "move" instructions.

The proper book to have would be the Libraries and Devices book, edition two, or the "Libraries" book edition 3 from Addison Wesley. I'm afraid you might find that book rather heavy going, and expensive, but it will teach you proper programming

SEIKOSHA NUMBER



I recently bought a Seikosha SP-1200AS printer. I have no instruction manual, and no driver. Can you tell me how I can get in touch with Seikosha?

**Peter Betts
Upavon
Wiltshire**

Seikosha (UK) Ltd is on 0753 685873. **JW**

practices on the Amiga which will help you to write good programs which are compatible with all Amigas; past, present and future. **TS**

EXTENDED GRAPHICS



I have recently bought an A500 Plus and am very impressed. However,

due to limited space I am having lots of problems with the TV modulator. The obvious solution would be to have a cable from the back of the computer to the modulator and an extended audio lead, thus the modulator could be placed out of sight. Could you either tell me where I could get a suitable cable, or give me instructions on how to make one up?

Could you also tell me where I can obtain the Amiga Basic language which used to come with WorkBench 1.3?

PB Cooper
Macclesfield
Cheshire

There's another obvious solution to your modulator problems – get a bigger desk! But seriously, if you want an extender cable you'll simply need to call Trilogic (☎ 0274 691115) and ask for a Modulator Extension Lead. The company usually advertises in *Amiga Shopper*.

AmigaBasic is no longer available since WB2 was issued. I suppose it was getting rather long in the tooth, and it wasn't all that thrilling in the first place. Out of curiosity, I dug my old 1.3 Extras disk out and tried to run a few Basic programs, but no dice! But this may



I would like a flicker free picture in high res mode on my A500. If I purchase a high-res Denise chip and a Multisync Monitor, would I be able to obtain this? At around £40 for the chip it would seem a good investment, but am I overlooking something?

F Wheeler
Scunthorpe
South Humberside

There are two things to be aware of if you are thinking about a Super Denise chip.

Firstly, it can only be used under Workbench 2, so you will have to upgrade your Workbench and Kickstart ROM as well.

Secondly, it does not remove the flicker from standard Amiga graphics modes. All it does is provide new flicker-free modes for the system, but unless your software is configured to recognise these modes, it will continue to use the standard, flickery, graphics modes. If your software supports productivity mode, or if it can be forced to run on the Workbench screen (which can be set up as a productivity screen) then you can run flicker free.

JR

be because I have an accelerator with 32-bit RAM fitted to my Amiga 2000, not because I'm running WB2.04, since AmigaBasic will run if fast RAM is disabled (using NoFastMem), but the speed of my machine was dramatically decreased – almost to a standstill. Fitting a ROM shaver and a 1.3 ROM might be a sensible alternative if you really want to run Basic on your Amiga 500 Plus. Try advertising for the software in the Reader's Ads, as I'm sure there must be plenty copies of WB 1.3 gathering dust out there. Alternatively, you could try learning ARexx, which is the programming language now supplied with the newer DOS versions, or try AMOS or another basic such as GFABasic. **GW**

PRINTING DOC FILES



I recently bought A68k from a PD library. Can you please tell me how to print out the document files? I have tried loading them into NotePad and ProWrite but this doesn't work. Also I've been using Basic for about four months and would like to move to assembler. Is Devpac 3 best for beginners or will the A68k assembler do?

Simon Hull
Whitney Bay
Tyne & Wear

You need to use an editor that can read/write ASCII text files of any length – ED or MEMACS (which is supplied on the Amiga's Extras disk) will do the job.

The A68k assembler is fine if you know what you are doing but Devpac provides a much friendlier, and more complete environment, and you also get all the necessary Amiga header files.

To be honest however I think that, with only four months of Basic experience, you are going to find assembler programming on the Amiga extremely difficult whichever assembler you choose. **PAO**

PC TO AMIGA



I have an Amstrad PC and Amiga A500 and would like to print files from PC

WordPerfect on the Amiga. Ideally, I would like to use the Amiga as a printer server. I have tried to achieve this via AmigaDOS but to no avail. I can convert the WordPerfect file to ASCII and transfer it serially using a time delay between each character – but this is very slow.

Do you have any suggestions

apart from using a switch box or throwing the Amstrad away?

Walter Campbell
Perth
Scotland

I think you have answered your own question there, Walter. The best solution is to use a parallel switch box which you should be able to pick up for around £20. You didn't say which Amstrad PC you had, but if it uses 3.5" drives you could copy the WordPerfect print files to the Amiga using a PC-Amiga disk bridge such as MessyDOS. Even if your machine has 5.25" drives, you could still buy a 5.25" drive for your Amiga.

The cheapest solution however, is to use a serial link. In this case you'll need some communications software at each end – there are plenty of examples in the public domain for both machines. You could start with NComm or JRComm for the Amiga, there are plenty of other examples for the PC.

First construct a printfile – get WordPerfect to print to disk – not the printer. Now hook the two machines together and set a terminal speed of 19,200 baud with 8N1 protocol. You will then be able to send the WordPerfect print file to the Amiga using a binary file upload/download such as XModem or ZModem. When the transfer is completed send the print file to the printer using AmigaDOS like this:

COPY PrintFile TO PAR:

Do *not* use the PRT: device because this attempts to filter the control codes and it will not give the correct results. **MS**

STILL AT C



Thanks for answering my query concerning error messages with NorthC and the

graphics/Intuition libraries (Amiga Answers issue 15). I am sorry I wasn't more specific but this time I have included the program listing that causes the errors. I know it's a poor program but I can't see the point of writing anything better if I can't even get this to compile. After reading the *Compiling the PD C's* article I now suspect that the problem lies with STRPTR not being defined.

Mick Scully
Radcliffe
Manchester

Sorry to hear about your NorthC problems but having seen your code I should be able to iron out some of the existing difficulties. The good news is that, in a general sense, your code is OK. The bad news is that an awful lot of slips have been

JARGON BUSTING • JARGON BUSTING

Contiguous memory – A section of memory all in one block, with consecutive addresses from beginning to end. Because of the Amiga's multi-tasking nature, it is possible for memory to 'fragment' if several small programs are loaded. You may have, for instance, 200K free, but this could be in several smaller chunks, meaning that you cannot load a program or piece of data that is 200K in size.

Editor – An editor, like a word processor, is a means of entering text into the computer. Programs are written with an editor before being turned over to a compiler or interpreter.

Fast RAM – Any extra memory which is not Chip RAM. The custom chips can't access it, and since such accesses to Chip RAM can block out the central processor and slow down its own accesses, Fast RAM is faster.

Format – A process of preparing a floppy disk so that it can be used by the Amiga.

Intuition – The part of the Amiga's operating system concerned with window handling, menus and so forth. It interprets user input from the mouse and sends information to the relevant windows via the Intuition Direct Communication Message Ports.

PCMCIA – An interface standard gaining prominence in the IBM PC world and now being taken on by Commodore with its new range.

made which seem to stem from some fundamental C misconceptions.

On the header file front the immediate errors are not caused by STRPTR not being defined. Your program is including the intuition.h header and this will automatically include the exec/types.h header (which contains type definitions for things like STRPTR).

One area however where you've clearly gone astray is in not realising the importance of the case of your variables and structure references. For example your program includes a line which reads:

```
struct intuitionbase ↵
*intuitionbase;
```

There is no structure called intuitionbase - its name is IntuitionBase. Furthermore you must define the pointer to this structure as IntuitionBase (the reasons are related to what happens when linking with amiga.lib).

Your program also includes statements such as:

```
struct window *cashwindow;
```

and again this structure does not exist - it is Window, rather than window, structures that are defined in the intuition.h header file.

Similarly function names are case sensitive. You have used statements such as openwindow(), openlibrary(), closelibrary() and none of these functions exist. The names you should use for these functions are OpenWindow(), OpenLibrary(), and CloseLibrary(). Another area where exactly the same faults crop up is your use of terms like null, smart_refresh, windowclose, and activate. None of these things are defined in the system headers - they should be NULL, SMART_REFRESH, WINDOWCLOSE and so on. You have, incidentally, also wrongly defined the flags field in the NewScreen structure and declared a NewScreen pointer where you should be creating a statically defined instance of a NewScreen structure. The net result is that, as your program stands, it contains more errors than lines of code, so it is hardly surprising that NorthC was getting confused!

From your code it also looks as if you are expecting the scanf() and printf() functions to read from and print into your window. They won't... these functions are designed to read and output using CLI/Shell type I/O handles - Intuition Windows use a totally different approach.

Having said that don't get disheartened because we all go through these types of 'learning curve' stages. Your code ideas on tax calculations etc, look OK and I

WORD PRO QUANDARY



For a year or so I've been using the shareware *TextEngine* text editor, but now I feel it's time to buy a proper word processor.

A 'word publisher' would be ideal, and at the moment *Pen Pal*, *Wordworth* and *Excellence!* are on my list. Reading your round-up in issue 6 just made it more difficult to choose!

I'm also considering *Final Copy*. Is it as good as it claims to be? Wading through difficult manuals is not my idea of fun so I would like the program to be user-friendly. Would I need more than 1Mb to print more than a few pages of pictures and text?

Niall McCann
Norwich

If a 15-page article and a review of *Final Copy* in issue 15 can't help you decide, what can? Whatever you decide, you will require a lot more than 1Mb of memory if you want to have lots of pages with lots of pictures on them.

Picking up on the one hint you gave me as to your requirements, *Pen Pal* and *Wordworth* both have 'on-line help'. This means you can get help on how to use the program from within the program itself. But on-line help is no replacement for a good manual, so it's just as well that both the *Wordworth* and *Pen Pal* manuals are well written and excellently presented.

If you can't be bothered to learn how to use a tool, then you can't expect to produce good results with that tool unless your name is something like Merlin or Rincewind or Gandalf. JW

think the best idea is to forget about Intuition windows and concentrate on getting a conventional scanf()/printf() form of your program working - that way you'll be able to read and write data using the CLI/Shell window which will keep things simple.

At the same time you ought nevertheless to try creating some Intuition programs which just do simple things - open a screen, open a window etc. Have another look at the *Compiling the Amiga PD Cs* (Amiga Answers issue 11) and experiment with the examples. PAO

CONFUSED A600



I have bought an Amiga 600, and although it worked fine at first, after a

few hours when I reset it, it scanned both the drives for a disk and then paused before showing the purple screen. If I reset and held both the mouse buttons down, the drive selector screen shows me df0:, df1:, df2:, df3: and cc0:. What worries me is that I don't have df2: and df3:! From the Workbench I get two icons saying df2:???? and df3:????? I think it might be a dodgy Kickstart chip. I have some more questions about the A600...

- Is it expandable to 2Mb or 10Mb of RAM?
- Are PC credit cards compatible with the Amiga 600?
- Do you know if Datel will be bringing an Action Reply cartridge out for the Amiga 600?
- Could I use a PC-IDE hard disk with my Amiga?

R Longworth
Poulton, Lancs

I would suspect your problem lies with the extra disk-drive, causing some confusion for the Amiga. It is unlikely to be a fault with the Kickstart, and if it worked fine initially, I would think that the expansion drive has upset something inside the Amiga 600. To answer your other questions:

- The Amiga 600 is in fact expandable to 10Mb theoretically, 2Mb of Chip RAM and 8Mb of Fast RAM. Commodore is going to produce an A601 which will fit in your A600's trap-door port giving you 2Mb of Chip RAM total and a real time clock. You can add 4Mb of Fast RAM through your credit card port and it is likely that a third party add-ons company, if not Commodore, will give you an add-on allowing the full 10Mb of RAM.
- The A600 credit card port is a PCMCIA port. It should be possible to simply plug in any PCMCIA card. Unfortunately they are still very expensive, but as they make themselves popular in the PC world, the prices should come down. You can now actually buy modems on a PCMCIA card, and Intel produces a 20Mb FlashRAM card, although I am not sure if the Amiga will support all of this! If you are going to get PCMCIA cards, I recommend you get RAM cards, as they are easy to use.
- When I spoke to someone at Datel, I was told that the company was not planning on producing one at the moment, but an A600 version had not been ruled out.
- This depends on your Kickstart version. Select "About" from your Workbench menu. If your Kickstart is 37.299, then you cannot without

replacing your Kickstart also. If your Kickstart is version 37.300 then you are theoretically able to simply plug an IDE drive in. This is not recommended, as you will invalidate your guarantee. Commodore will be producing an Upgrade kit that will allow you to add a drive to your Amiga. Ring Commodore on 0628 770088 for further information. TS

PAGESTREAM STRIKES



You will find attached a letter I want to publish to my diving club. As you can see,

part of the text is missing. It doesn't print like this all the time, there have been times when the first sheet prints OK but subsequent sheets are faulty.

I use *PageStream* and *Protext* on my Amiga 500 Plus. It is expanded to 2Mb, has a second drive, and my printer is a Star LC24-200. The printer works fine with *Protext* and *Deluxe Paint*, leaving me to suspect that it must be something to do with the way *PageStream* operates.

AD Smith
Walsall
West Mids

Your print-outs show the classic symptoms of what happens when DTP programs run short of contiguous memory - bits of the page going missing. The reason it doesn't happen all the time is that sometimes memory is less fragmented, so it can form the high-resolution A4 bitmap OK, but at other times there's not enough memory all in one chunk to do the job properly.

If you want to test this theory out, print your page at a lower resolution (say 180 by 180 dpi), and you'll find that the problem completely goes away. But the output is not so good, of course.

The answer is more memory. One megabyte will probably sort this little problem out, but if you are using *PageStream* regularly I'd recommend you go for as much more memory as you can afford. JW

TELLING FIBS



My Amiga is not formatting disks to a full 880K. I've tried various programs

such as *X-Copy*, *CLI-Mate* and *Workbench*, but every time the disks are formatted with exactly 856928 bytes. My external drive does the same, so it can't be a fault in the internal drive. When I use INFO from CLI, it says the disk has 880K, CLI-Mate says it's not. When I try to copy an 860K file I get a disk full message.

Kevin Howell
Brislington, Bristol

This is a complex one to give a short answer to, but very briefly – there is nothing whatsoever wrong with your equipment, it just works like that. The long answer goes something like this...

There are two mainstream DOS Shells for the Amiga – the official one now at version 2; and the ARP (AmigaDOS Replacement Project) DOS created by the Microsmiths. Both of these have an INFO function, but return different and often confusing values for the amount of free space on a disk. There are two camps: some (Amiga) say 880K per disk, the others (ARP) 838K.

Here then to set the record straight are the facts.

• **FACT:** Amiga floppy disks, formatted by the system have 512 bytes per sector usable by DOS. There is no denying this – it's a nice binary number and, as far back as I can remember, FM (frequency modulation) and MFM (modified FM) formats have always used some multiple of 2^n bytes: 128, 256, 512 and so on.

• **FACT:** There are 11 sectors per track, 80 tracks and two sides to every disk. 1760 possible sectors in all: $1760 \times 512 = 901120$ bytes or approximately 880K on a disk.

• **FICTION:** Every block on a disk contains 488 bytes of data. This implies the sector format is also 488 bytes which is ridiculous.

• **FICTION:** The maximum data storage on a disk is 838K (from the 488 bytes per sector premise). Since the first premise is wrong and derivations made from it must therefore, also be incorrect. The figure in contention is bytes per

block. Some say 512 others, 488. Commodore has been known to quote 488 – although it depends who you talk to, and in what context. This is the crux of the argument.

The 488 byte figure is arrived at from the capacity of an AmigaDOS DATA block. Avoiding the technicalities for a moment, every data block has 6 longwords – 24 bytes – reserved for DOS. Subtract 24 from 512 and you get: 488 – the magic number.

This is further complicated because for every file created on an Amiga disk by AmigaDOS, at least one complete block is reserved for use by the system. It's called the file header or file info block (FIB) and occupies a complete sector – 512 bytes in effect.

Now let's say you create a file which is one byte long. How many blocks does it take?

• One sector for the file header block plus one sector the data block = two 512 byte sectors or 1024 bytes or 1K

Therefore, since there are 1760 possible blocks on the disk, the maximum number of one-byte files you could possibly ever store on an 880K floppy is 880. Slightly less in real terms since DOS reserves a few blocks hither and thither for other functions – such as the boot block, root directory and bitmap.

It might seem fair from this argument to suppose that a single file could occupy the entire capacity of the disk. As I've already said, data blocks contain 488 bytes of user data plus 24 bytes of DOS information. From this premise you could be forgiven for thinking that 488 bytes per block is more accurate ($1760 \times 488 = 838K$).

Even if you did have the full disk to yourself, the file header block can only hold a fixed number of block references. If this number is exceeded, DOS creates another subsidiary block called a file list block – which takes up another 512 byte sector – and starts filling that. If that gets saturated, then another list block is created until the disk gets filled. In practice, the largest single file that can be stored under conventional DOS is just over 820K an extra 18K is taken by DOS. FFS is better – around 860K in practice can be stored as on contiguous file.

Where do directories fit into all this? Well every directory takes at least a single sector for its own use – 512 bytes a piece. 200 odd bytes are reserved in the middle of the directory structure for the hash table. (This is what allows AmigaDOS to locate a file or sub-directory very quickly – by best guessing the name from a hash calculation and then locating it by nipping down a linked list).

Each directory takes exactly 1 x 512 byte sector which can be proven simply by formatting a disk, getting its info, creating a single directory and getting info again. In theory therefore, it should be possible to create 1756 user directories on a disk – 1760 sectors minus two for the boot blocks, minus one for the bitmap and one more for the root directory. 1756×512 bytes = 878K! Needless to say though, there wouldn't be any room for anything else.

1760 sectors are divided as follows...

- Two sectors for the boot block: side 0, track 0, sectors 0 and 1.
- One sector for root block: side 0, track 39, sector 0.
- One sector for the bitmap: starting at side 0, track 39, sector 1.
- 1756 sectors for DOS and user information.

To calculate any block reference from track, cylinder and sector information you use the following formula. Note AmigaDOS numbers the first track one, not zero:

$$\text{Block} = (\text{track} + 1) \times 22 + (\text{side} \times 1) + \text{sector}$$

MS

ACCELERATORS AND RAM



I am considering buying a VXL-30 accelerator for my A1500, but I have been told that the 32-bit RAM board is not available. I also own a 105MB GVP Impact II hard disk with 2Mb of 16-bit RAM on board. Would it be possible to replace the 16-bit RAM with 32-bit RAM instead, and would the VXL-30

recognise it as 32-bit RAM?

I have seen an advert for the A386SX bridgeboard, would the VXL-30 speed the bridgeboard up at all? Also, would it recognise a PC super VGA card plugged into one of the A1500's PC slots, and if so, would I need a MultiSync monitor to display the screen?

Robert Downs
Blackpool
Lancs

It is not possible to replace your 16-bit RAM on the GVP card with 32-bit RAM. The reason for this is that the GVP card is a 16-bit card, as it interfaces with the 16-bit 68000 processor in your A1500. The only way to add 32-bit RAM to an Amiga 1500/2000 is to add an accelerator card with 32-bit RAM on board.

The problem lies in the fact that your A1500 is a 16-bit computer, and when you add an accelerator such as a 68020 or 68030, you suddenly have a 32-bit processor. This chip then has to slow down to match the A1500 when accessing 16-bit RAM. If the 68020/68030 is to make any use of its 32-bit data bus, then it has to have 32-bit RAM on the accelerator card itself. This is not a problem on the Amiga A3000, as that is a 32-bit computer and has 32-bit RAM throughout.

Adding an accelerator card to your Amiga would not speed up the bridgeboard at all. The bridgeboard is actually a PC 386SX in its own right, and is a totally separate computer to your Amiga. Special electronics and software handle communications between the PC side and the Amiga side. You could plug a SVGA card into one of the PC slots inside your A1500, and you would require a separate SVGA monitor. **TS**

GETTING ANIMATED



I will soon be updating my A500 to either an A1500 or A2000 and would like

to know which would be more suitable for animation, as I don't really know the difference, I'm afraid.

I know I will need a genlock – I wish to mix graphics with Hi-Band U-Matic video – but that's all I am certain of. Can I use a Philips TV (with SCART socket) as a reasonable monitor? Please help as I have not had any useful info from any computer shop staff!

Danny Wiggs
Bradford
West Yorks

There are a couple of subtle differences between the Amiga 1500 and 2000 models. Firstly, the A1500

continued on page 50

JARGON BUSTING • JARGON BUSTING

AmigaDOS – The most basic part of the Amiga's operating system – the collection of programs that take care of the general running of the machine. AmigaDOS concerns itself with device-handling: control of the keyboard, basic screen output, disk drives, printers and so on.

Bit – A binary digit, with a possible value of zero or one.

Bridgeboard – A plug in card released by Commodore for the A1500 and upwards which enables the Amiga to run programs written for the IBM PC series of computers.

Byte – A group of eight bits. The byte is the most common memory unit. Larger units are the kilobyte (1024 bytes) and the megabyte (1024 kilobytes).

32-bit Memory – Memory accessed by a processor (68020 and upwards) in chunks of 32 bits at a time, rather than the more normal 16 bits. As a consequence, accesses to memory are much faster.

Genlock – A way of slaving one video source (eg Amiga) to another (eg video tape) in order to synchronise their signals to allow stable wipes, mixes and other effects including overlay between the two sources.

A hand holds a small Polaroid photograph of a person waving. Several other similar Polaroid photos are scattered on a light-colored surface next to a computer keyboard.

A photograph showing a hand holding a black remote control in the foreground. In the background, there is a television set displaying a menu with various icons, and a dark-colored VCR or DVD player sits below it. The scene is set in a room with light-colored walls.

-

Show facts

Where? Earls Court, heart of London

How much? £7 adults, £5 Under 14s (but see Save time and money)

Who? Everyone who's anyone including the entire Amiga Shopper team

Get smart. Getting on for 100,000 people are expected to attend the Future Entertainment Show.

And you know what that means: queues.

So avoid all the foot-shuffling, hanging-around-for-ages start to the Show by booking your tickets early.

And you'll even **save money**! You can't lose really, so do it now!

Tickets

AS/09

I would like to order advance tickets for the Future Entertainment Show and save £1.05 per ticket.

Please send me _____ adult tickets at £5.95 each

Please send me _____ under-14 tickets at £3.95

Total Payment £

Method of payment ☐ Visa
Please make all cheques ☐ Access
payable to: ☐ Cheque
FUTURE ENTERTAINMENT SHOW ☐ PO

Card number _____

Expiry Date

Name _____

Address

Post code

Send this form to: FUTURE ENTERTAINMENT SHOW
PO Box 2, Ellesmere Port, South Wirral, L65 3EA

HOTLINE 051 358 5085

JARGON BUSTING • JARGON BUSTING

Accelerator board – A device which either includes a central processor like the Amiga's, or a more advanced one in the same range, but operating at a higher speed.

C – A compiled language designed primarily for systems programming. It was used to write much of the Amiga's operating system.

IconX – A handy little public domain program which will enable a Shell script (a collection of Shell commands held in a file) to be executed via clicking on an icon via the Workbench.

Intuition – The part of the Amiga's operating system concerned with window handling, menus and so forth. It interprets user input from the mouse and sends information to the relevant windows via the Intuition Direct Communication Message Ports.

RGB – Red Green Blue – a standard for video signals that provides better quality than composite or Radio Frequency signals.

Shell – A method of communicating with the Amiga's operating system via the keyboard rather than the more usual mouse and windows method of Workbench.

continued from page 48

has two internal disk drives fitted while the A2000 only has one. Secondly, you can't buy A2000s any more (at least not new ones) as they were effectively superseded by the A1500 – which in its early days was a rebadged A2000 anyway. Otherwise they can be considered to be identical machines.

If you buy a genlock which has an RGB pass through then there should be no problems using the Philips TV for monitoring. Most of the better genlocks have this feature as standard anyway, so just look out for it when you are considering your purchase.

I would also recommend that you think seriously about buying a hard disk, extra RAM and even an accelerator, as animation tends to be processor intensive, as well as needing lots of storage space. There's a whole range of new turbo cards which can carry both RAM and SCSI hard drives – such as GVP's G-Force series and the Progressive cards. These devices will seriously increase your productivity, but check with the bank manager first! **GW**

INTUITION, TOO



I am trying to write a fairly complicated Intuition program using Workbench 2

and am having many problems (even detail and block pen values in the windows do not work). Are there any books on Workbench 2 Intuition programming?

Mark Hayes
Worthing
West Sussex

In your original letter you've asked about so many things that it is

impossible to give you complete answers. The bottom line is that things have changed drastically in the Intuition areas that you've mentioned and to sort them out you are going to need the new Workbench 2 orientated ROM Kernel Manuals. **PAO**

ICONX, WON'T X



I am having some problems with AmigaDOS on a disk I am making:

- a) When I try to use IconX, its window just pops up and goes away.
- b) Even though the startup-sequence makes Shell-seg resident and mounts NEWCON:, when I double-click on the Shell's icon, its window appears then vanishes.
- c) Can you also tell me what the following are: the Ramdisk.device on my ARP disk; the RAW: window and the devices JH0: and VD0:.

Anon

These are quite common problems and probably due more to Commodore's iffy manuals than they are to user error.

- a) IconX tries to execute a script of the same name as the icon which called it. Therefore, if you have a project icon, called "BLURB" you must also have a script file called "Blurb" in the same directory.
- b) I suspect the reason for this is either that you have not put the System directory on the new disk, or you have not put the CLI icon in the System drawer.
- c) The ramdisk.device on your ARP disk is probably one of the several reset-proof RAM disks that popped up a few years ago. Most folk use RAD: these days, it does exactly the same job. RAW: is an AmigaDOS

console window (like CON: and NEWCON:) which does not translate and control characters. Once opened, the RAW: window cannot be closed from AmigaDOS. VD0: is "Virtual Disk 0" usually a device name for some recoverable RAM disks; similarly, JH0: is the Janus hard disk – an old Commodore type. These devices only appear on dumb file requesters – that is, those that do not search the device list for mounted drives. **MS**

AMIGA DIFFERENCES



a) I had previously settled on getting an A500 Plus, but since this has been

replaced with the A600 (which reminds me of the Oric Atmos!). I decided on an A1500. I now hear this is to be replaced also. Is it worth hanging on for an announcement about new mid-range Amigas?

b) What are the differences between the A1500 and the A2000?

c) I am interested in programming the Amiga in C, as I am familiar with Ansi C from Unix. Which books do you recommend for both learning about programming the Amiga system and for reference?

d) Where can I get the Commodore include files and how much do they cost?

e) Is Lattice/SAS C really worth over £200, or can I get away with using the PD NorthC or Dice?

f) Is the Microbotics VXL-30 accelerator board any good? Will it cause compatibility problems with Games?

g) If I buy an SCSI controller card, such as the GVP one with a Quantum 105Mb drive, can I add bare SCSI drives to the same controller at a later date?

h) Is there a PD assembler which can assemble 6502 code for porting across to the C64?

Glenn Davis
Swinton
Manchester

a) To be honest, you could wait forever. Commodore will continue to expand and enhance its product range, but we don't know when it would replace the A1500/2000, or what with. If you wish to wait, you could find yourself waiting a very long time indeed. Considering the expandability of the A1500 I would recommend buying one of those now, rather than waiting. Alternatively, you could save up and buy an Amiga A3000 – which is a far better choice, as it is a much faster and more powerful system, which is in fact capable of running Unix.

b) The A1500 has two floppy drives and no hard disk, the Amiga A2000 has one floppy drive and a 52Mb quantum SCSI drive.

c) I recommend you get the official Commodore reference books published by Addison Wesley, third edition. You will need three books, Amiga Reference Manual – Libraries, Amiga Reference Manual – Devices and Amiga Reference Manual – Includes and Autodocs. These are the real thing, and will teach you programming practices on the Amiga that will ensure the best possible compatibility with current and future systems.

d) If you buy a C Compiler such as Lattice/SAS C, then these will be supplied for you. If you get a PD Compiler, you will need to buy these from Commodore Developer Support at Maidenhead. Write to Sharon McGuffie, Commodore Business Machines, The Switchback, Gardner Road, Maidenhead, Berks, SL6 7XA. You will need to enclose a cheque for £25 made payable to Commodore Business Machines, and a covering letter explaining that you are buying the "Native Developers Upgrade Kit." This will include the latest versions of the includes, together with some example programs that you can look at.

e) This is a tough one! The answer to this question rather depends on what you are trying to do, and what your budget is. If you want the manuals, and the professional technical

WHY, WHY?



I've got a Canon BJ-10ex bubble jet printer and it keeps printing out the pound sign with two funny characters after it. No, I'm not talking about Little and Large – they're not funny – I mean two 'y' letters with umlauts on them. Then it'll print the number of pounds.

So I get something like '£~47'. I am using the EpsonX printer driver, and the same thing happens with EpsonQ.

R Storey
Eastbourne
Sussex

Sounds like you are probably using the BJ-10ex in IBM mode with an Epson driver.

Whatever it is, what you really need is the proper Canon BJ-10e/ex driver on Jamdisk 5, from JAM ☎ 0895 274449. **JW**

support then I would suggest that £200 is a suitable amount of money to pay for a product such as this. If you are more into learning, and writing some small home programs, then a product such as *DICE* might be sufficient.

f) Any accelerator could potentially produce incompatibility problems – especially with badly written games. If you are going to buy an accelerator, make sure that it has a fall back mode to 68000 so that you can still remain compatible with your old software.

g) You can add up to seven devices to a SCSI controller card without needing to buy further controllers. These can include things such as tape streamers, flat bed plotters, laser printers, hard disks and so forth.

h) There is an excellent C64 emulator available for the Amiga in the PD market. I do not believe that there is a cross assembler that you can use to assemble code for the C64. This is best done on the C64 to be honest. **TS**

IN THE PICTURE



How do I use PageSetter II to produce a 'frame' around a picture so that the frame is filled with one of the fill patterns?

**Eric R Billington
Birmingham**

You need to do it in three steps. First use the box drawing tool (in the bottom bank of tools in the toolbox, not the bounding box tool in the top bank) to draw the box that will form the outside of the frame. With that box still active, select Fill Pattern from the Draw menu, choose the pattern you want in your frame and click OK. Make sure Wireframe Graphics is toggled off (in the Preferences menu) otherwise you won't see any change on the screen.

Now draw a smaller box inside that patterned box and go through the same steps as above to give this smaller box a solid white fill pattern by selecting the white area in the greyscales section at the top of the Fill Patterns requester.

If you need to adjust the width or height of either of these boxes, do it by dragging the handles around the edges of the box, but remember to hold down the Alt key at the same time as selecting a handle because what you are doing is re-scaling a structured drawing. (If you forget to hold down Alt when you make the box bigger you'll find that the fill pattern won't stretch to fill the new size, it'll remain just as it was before.)

Once your two boxes are perfectly aligned to form the 'picture

frame' you require, group them together and select Merge from the Group menu. The two boxes will now become a single structured graphic.

To place a picture in this frame simply draw a bounding box in the white bit and import the graphic.

It might be an idea to save the frame as a page (not a document) so you can import this page (and thus the frame) into any other documents that might need it. **JW**

OLD FASHIONED TITLING



I have an Amiga 500 and 1084S monitor and I have recently started to get

interested in using video graphics to spice up my otherwise boring holiday videos so that I can impress my family and friends. Taking your advice from the July issue I sent off for a copy of VideoLab to get started. I also enjoy using DeluxePaint III and have produced some worthwhile animations.

But how do I connect my computer setup to my video recorder? Do I have to use the A520 video adaptor or can I hook up with the monitor? Will I have to buy a suitable connector? I would appreciate any help that you can give me.

**Les Porter
Pembroke
Dyfed**

At its simplest, using your Amiga for video work involves recording Amiga graphics to video tape in between the other sections which you are putting together on your VCR. This means that you have to have both a source video and a recorder, as well as an Amiga. Connecting the video machines together can be as simple as connecting the audio and video inputs and outputs together correctly, but getting pictures from your Amiga is a little more complicated.

Firstly, as only the early Amiga 1000s had a colour composite video output (which meant the computer could be connected to a VCR directly), you'll need some additional hardware to convert the RGB signal produced by the Amiga into a regular video signal. The most basic form for this is a modulator, which provides video and audio outputs that can be used with a VCR. However, with a modulator all you will be able to do is record direct to tape unless you have some form of video mixer.

A more flexible and creative solution would be to use a genlock, which allows you to feed both video and Amiga RGB signals in and get a result of Amiga graphics overlaid onto the video signal. To give you an idea of what this looks like, if you used an Amiga picture produced with

BACK TO THE FUTURE



I have installed version 5.50 of Protext on my A590 hard drive, and have been using it for quite some time now. I have always been satisfied with the product and have always considered myself to be fairly proficient in its use.

But I have encountered a problem. Whenever I try to insert the current date, either via the pull-down menu or keyboard short-cut, I find that Protext inserts yesterday's date.

Why? And how do I get around this problem?

**Andrew Marples
St Albans
Herts**

It's a bug that manifested itself on February 29 this year. (Think about it). Return your original program disk to Amor and the company will upgrade you to the current (and fixed) version free of charge. **JW**

Deluxe Paint and the background colour was the first colour in the palette (Colour 0) then all the background would be "Invisible" and the video signal would show through instead. Got it?

I am afraid you'll have to spend some money to do achieve this effect – a cheap genlock will cost around £100. Unfortunately you can't just take the video output from your monitor (since it doesn't have one anyway), though it sounds like a logical idea.

So the choice is yours – modulator or genlock. I'd recommend the genlock option myself, for both quality and flexibility. For a little more info see the *Start up video* letter hereabouts. **GW**

GADGETS AND THINGS



At present I am writing a small database manager in C and am using lots

of string gadgets. How can I make the gadgets active without the user having to click into them?

**John King
Northfield
Birmingham**

There is an Intuition library routine called *ActivateGadget()* specially designed for this job – usage details are given in the Includes & Autodocs ROM Kernel Manual. Your Workbench 2.04 RAD: problem (mentioned in your original letter) is not something I've come across and I think the best idea is to write to Commodore Technical Support to see what the people there say. **PAO**

ACCELERATOR CHOICE



Having recently upgraded from an A500 to a B2000 with a GVP Impact

Series II hard disk card, the next upgrade I require is an accelerator as my main application areas aside from programming are graphics, and in particular ray-tracing. I am working on a very limited budget

and was considering going for the Microbotics VXL30.

a) Firstly, I know that the VXL is a piggy back board, so how easy is it to install, bearing in mind that my system is fitted with Kickstart 2 and the ECS? Also, is it easily disabled for compatibility purposes?
b) When purchasing the 68882 will it be necessary to get one with a speed equal to that of the 68030? Could I get a 33Mhz 68882 and use it with the 25Mhz 68EC030?
c) I believe the EC version of the 68030 comes without a Memory Management Unit. Is this correct, and how will it effect the performance of my system?
d) Will the board require faster memory chips to handle the increase in processor speed?
e) Finally, will my intended setup show a major speed increase in the applications I am running, including Real 3D, Imagine, DPaint etc?

**Shaun Stephenson
Chester-Le-Street
County Durham**

a) You shouldn't have any problems with this set-up, but again, it's best to check with your dealer before buying the card.


b) This rather depends on the accelerator card you buy. It's best to consult the manufacturers to discuss this, but certain cards will indeed allow you do do this.

c) The EC version of the 68030 does indeed not have the MMU. This will primarily only affect you if you do a lot of programming, or are planning on running UNIX, as UNIX requires the MMU to operate. As far as programming is concerned, there are some very useful utilities which help you to debug programs, such as "Enforcer", which make use of the MMU in order to help you see what is going wrong.

d) The board will happily use all of your existing RAM, but the speed increase will be limited, as the memory inside your Amiga is all 16-bit, and is selected to run from the 7.14Mhz 68000, not the 25Mhz

68030! If you want to see the full effect of your accelerator card, you will need to get one that allows you to add 32-bit RAM to it.
e) Yes, you will see a considerable increase in speed in all of the applications you have listed. Some of them come with a specially created version optimised to work on the 68030 and/or 68882. **TS**

KCS OR BUST?

 I have an Amiga 2000 with an XT bridgeboard, 20Mb hard disk and 1Mb of RAM. The Amiga side is being used for *DPaint III* and *Sonix*. The PC side is used for word processing and as an extension to my PC at work. I would like to run *Microsoft Chart*, but I suspect the graphics output to slow.

I am about to install a GVP hard card with a Quantum 105Mb SCSI drive and 8Mb RAM, with a view to running a word processor, desktop publisher and database on the Amiga side. I would also like to install a modem and a CD-ROM in due course. Therefore:

- a) Are the advantages of the KCS system sufficient that I should consider changing now?
- b) Can a single modem be used for both the PC and Amiga sides with appropriate communications software in each case.
- c) Would it be more sensible to wait for Commodore to produce a drive to allow the A570 to be run with the A2000 or buy a CD-ROM to run on the PC side now.

Philip Evans
Eastleigh
Hampshire

existing Commodore XT bridgeboard, although Commodore is talking about a very sweet little 386SX bridgeboard which may be shipping by the time you read this. Personally, I have found the KCS board offers the best value for money since it does support more graphics modes than any of its competitors – and this would be useful to run things such as *Microsoft Chart*. The output speed to your Paintjet should be the same as a fast XT.

b) Yes. Provided the modem is connected to the external serial port and is not some internal variety, it will work with both systems – only one at a time of course.

c) As far as I know, Commodore has no plans to produce a CDTV CD-ROM drive for the Amiga 1500/2000 machines (watch the company prove me wrong). If you did manage to get a proper PC one to work, it would not be compatible with the Amiga. **MS**

TO CG OR NOT TO CG


 I have just upgraded to an Amiga 1500 Plus with GVP hard drive and 5Mb of memory. I own *PageSetter II* (1.1) and the only outline font that comes with it is CGTimes. I would like to use the LetterGothic and CGTriumvirate fonts supplied with Workbench 2.04 as they give far superior output when compared to bitmap fonts, but I am having problems installing these because *PageSetter II* does not seem to recognise them. The file formats seem different. Can you help?

Edward Campton
Scraptoft
Leicester

Alas, the Workbench 2.04 Compugraphic font format is not the

same format as that used by *PageSetter II*. To get more fonts that can be used by *PageSetter II* you need to buy something called the *Outline Fonts Pack*, which costs about £90 and contains 35 professional typefaces, or contact George Thompson Services (☎ 0707 664654) or EM Computergraphic (☎ 0255 431389) both of which sell packs of shareware Compugraphic type fonts which they say can be used with *PageSetter II*. **JW**

MORE RAM

 I am a student who owns an A500 with a version 5 motherboard. I have heard that this version was a slight cock up by recent Amiga standards, and I was wondering whether you could help me on a few points.

- a) I am an experienced user of *ProTracker 1.1b*, but I need at least 1.5MB chip RAM to run it better. At present I have 0.5Mb Chip and 0.5Mb Fast RAM. Will it be expensive to do this, as I only have the 8371 Agnus and no ECS?
- b) I'm interested in purchasing a KCS board for my work, trouble is, where would I put the Chip RAM? I currently use *Transformer 2.01*, and am reasonably happy running my word processor.
- c) I've heard about a 14Mhz accelerator which can grab a faster clock signal using a 68010 chip and a small PCB. I was told that I cannot do this as my RAM chips are 150ns, and it would fail to boot as a result, why?
- d) Having read all of this, do you think I'd save more money by selling my A500 and getting myself an A600 or an A1500?
- e) If so, is there a 2.04/1.3 ROM switcher for the A1500 & A600 or is it the same thing as used in the A500? I would need this as a lot of my software including *Protracker* and *transformer* would not run.

Chris Poacher
Mid Glamorgan
South Wales


- a) You will probably find *ProTracker* requires 1.5Mb of RAM, not necessarily Chip RAM, as the only machine that currently allows more than 1Mb of Chip memory is the A3000. DKB software in the US does a special adapter for the A500/A1500/A2000 that allows a full 2MB of Chip RAM, however, and that costs around £200. Adding one of these yourself would invalidate any warranty you may have.
- b) If you expand your memory using the trapdoor, then you will have no place to put the KCS board. However, if you are using an internal adapter, such as the DKB one then this is not a problem and you should

be able to use both. It is always best to double check with your dealer.
c) You shouldn't actually have any problems with this sort of accelerator card. Check with your dealer before purchasing, but a 14Mhz 68010 should not have any problems with a standard A500.

d) This depends on what you are planning on doing on your machine. If you simply play games, then your current setup is more than sufficient. If you are planning on using applications such as word-processors, databases and perhaps programming too, then you will need to start considering more RAM and a hard disk, possibly an accelerator card also. The A1500 is most useful to you from that point of view, as it is a large box with lots of expansion capabilities.

e) It is unlikely that you will be able to fit a ROM switcher inside the A600, but a normal ROM switcher of the type you describe will work in both the A1500 and A2000. **TS**

GET A MULTISYNC

 I am a student and sometime soon I will be buying an Amiga 1500, GVP hard drive, PC emulator and so on. My problem is that I also want to buy a multi-sync monitor, which will probably be an NEC one. Can you tell me what technical specification (if any) I need to ask for when buying it?

Another point – why on earth has the Amiga 1500 only got 1Mb of Chip RAM? Can a new Super Denise be swapped to allow 2Mb of Chip RAM?


Chris Lewthwalte
Long Eaton
Nottingham

If you still want to be able to use the normal Amiga modes you should look for a multisync that can go as low as 15.6KHz for the horizontal sync rate. But if you are going to use a deinterlacing card, such as a Flicker Fixer, or a graphics card with such capabilities, for example GVP's Impact Vision, then the monitor must be able to handle at least 31.2KHz. I would have thought that the whole point of a multisync is to have a more stable picture anyway! So your best bet would probably be one which can handle a range of frequencies, from 15.6KHz upwards.

You should also be aware that the smaller the "dot pitch" (the distance in mm between the phosphor dots), the better the picture will look. Most multisync monitors fall into the .25 to .31 range, which compared to the .42 pitch of a standard 1084 monitor will look rather good.

Out of curiosity I flicked through July's *Amiga Shopper* and noticed

RAM CONFLICT

 I have a 0.5Mb RAM expansion from Datal Electronics (*Pro-RAM*) and this can be set as chipmem. I also have a 1Mb Zydec megaboard which fits between the 0.5Mb upgrade and the trapdoor slot and connects to the Gary chip. If I fit the supplied connector to the 0.5Mb upgrade and make the required PCB alterations, will I end up with 1Mb Chip and 1Mb Fast memory or lose all my Fast memory? Also could you tell me how to connect the Amiga's RGB connector to an Amstrad VGA colour monitor. If I do this will I only be able to use NTSC or will PAL be visible on the monitor?

Ian Webster
Fallowfield
Manchester

As far as I know you can't have 1Mb of Chip memory and use the megaboard RAM extenders. The best way to add fast memory to the Amiga is via the expansion port, either in a hard disk interface or with a separate RAM expansion such as the Cortex or Supra 500RX.

The Amstrad VGA monitor is not a multisync, and therefore won't work with the Amiga. It may be possible to use it with an ICD Flicker Free Video board, but then only if the machine is modified to run at NTSC frequencies permanently. **JR**

that First Choice sells a Philips SVGA monitor and Flicker Fixer together for £399.99 and Trilogic has an AOC for £329.99, so shop around.

On your second point, I'm afraid that you'll have to fit a MegaChip 2000 to increase your Chip RAM to 2Mb. By the way, Chip RAM is dealt with by Agnus, not Denise! **GW**

SETTING UP C



I am encountering problems with setting up *Lattice C* (5.10B) purchased from the 16 Bit Centre, Harrogate. My procedure was as follows: To begin, the *Lattice* boot disk tells you to put certain assigns in the startup-sequence but when I try:

```
ED s:startup-sequence
```

all I get is the message 'unknown command ED'. Similarly if I try:

```
EDIT s:startup-sequence
```

I get 'unknown command EDIT'! How are assign commands inserted into the startup sequence?

Also the *Lattice* documentation says that the various tools, including the editor, can be made resident. When I try this I am told that 'Editor' is unknown. The people at the 16 Bit Centre were unfortunately not able to help but they did give me the telephone number of a third party who, at a cost of twenty pounds, supplied me with two disks, one a working boot disk. These disks remedied the problems but I am still in the dark as to what I was doing wrong. Can you throw some light on the subject? I've also had problems with naming the disks I've tried to prepare!

**BC Carrington
Roos
East Yorkshire**

I suspect that the reason that you were sold additional disks is that, given your explanations, someone suspected that you had inadvertently corrupted your original disks. As it happens I doubt whether you did corrupt your disks but there is a moral here – never, ever, modify any original disks that you receive with any software package. Always write protect the original master disks, make back up copies, then put the masters away somewhere safe. You can then modify the copies and make your day-to-day working copies from those 'master copies'. That way you will always have the originals to fall back on if something goes wrong (this approach is obviously not possible if the product uses a copy protection scheme).

As far as setting up the

Lattice/SAS system is concerned here's the rundown: *Lattice/SAS C* automates most of the installation procedures and provides details of the hard drive and floppy drive operations in the disk 1 readme file. The readme file talks about editing the startup sequences but you tried using ED and EDIT and the reason for the 'unknown command' messages is that ED and EDIT aren't provided with the *Lattice/SAS* system. *Lattice* has its own text editor, called LSE, which is far more powerful and if, for example, you wanted to edit the startup-sequence file you could, assuming that the *Lattice/SAS* disk 1 was in drive df0:, type:

```
lse df0:s/startup-sequenceII
```

or alternatively use the disk name itself, ie type:

```
lse SAS_C_5.1.1: .I  
s/startup_sequenceII
```

either way the LSE editor will load in the startup sequence ready for editing. Adding, deleting, and editing assigns and so on, is just a matter of physically altering the text in the startup sequence text file – spend ten minutes playing around with the LSE editor and its documentation and all should become clear as far as text editing is concerned.

The *Lattice/SAS* manual will give details of what changes can be made but at the end of the day a twin-drive Amiga system running *Lattice/SAS* will usually have a set of assignments in operation that look like this:

```
Volumes:  
RAM DISK [Mounted]  
SAS_C_5.1.2  
SAS_C_5.1.1 [Mounted]  
  
Directories:  
LIBVolume: SAS_C_5.1.2  
INCLUDE Volume: SAS_C_5.1.2  
LC SAS_C_5.1.1:lc  
QUAD RAM DISK:  
ENV RAM DISK:env  
CLIPS RAM DISK:clipboards  
t RAM DISK:t  
S SAS_C_5.1.1:s  
L SAS_C_5.1.1:l  
C AS_C_5.1.1:c  
FONTS SAS_C_5.1.1:fonts  
DEVS SAS_C_5.1.1:devs  
LIBS SAS_C_5.1.1:libs  
SYSSAS_C_5.1.1:
```

These details incidentally were generated by typing 'assign list' at the CLI/Shell window after *Lattice/SAS C* was up and running. The *Lattice/SAS C* 5.1 disk names are called SAS_C_5.1.1, SAS_C_5.1.2, SAS_C_5.1.3... and so on and you need to keep to those

JARGON BUSTING • JARGON BUSTING

Compugraphic fonts – Rather than a simple bit-mapped image of each character, which grows more jagged with magnification, a Compugraphic font represents the shape of each character within the font as a mathematical equation of the outline. Consequently, as the magnitude of the character is varied in printing, no information is lost and the result always looks smooth.

Multisync monitor – A monitor which can accept its signal at a variety of frequencies, usually ranging from 15 to 32 KHz. A multisync is useful for displaying signal produced by a flicker fixer or from an IBM PC VGA card.

Printer driver – A program that sits inbetween any applications program producing output and the printer. It converts any codes describing text and graphics format into a form suitable for a specific printer.

RAM – Random Access Memory, so called because any part of it can be accessed immediately. RAM is used to hold programs while they are being executed and temporary data.

SCSI – Small Computer Systems Interface is the standard used for connecting hard drives, CD-ROM drives and tape back-up units to computers.

names because they are explicitly referred to in the startup scripts.

PAO

BIG 590



I would like to expand the capacity of my A590. Can I do this by attaching an

external SCSI drive? If so where would I get such a thing from and how is it fitted? Would I be able to configure one of the hard drives for use with the KCS Power PC board and the other Amiga?

Also, can you recommend a way of increasing the Chip memory on my 18 month old A500. I am not worried about invalidating my extended warranty.

**Jim Perry
Sandy
Beds**

The best way to get more capacity from an A590 is to add a larger internal SCSI drive, say 52 or even 105Mb. This will enable you to retain the existing 20Mb and replace it if you want to upgrade later on. The advantage of a SCSI here is that you will always be able to buy a SCSI board for the larger machines. An external 52Mb SCSI system is available but the extra cost works out almost as much as buying a 105Mb internal drive. The very obliging people at Omega Projects will be able to supply the upgrade drive and even fit it for you. They are on 0942 682293

Judging by the age of your machine, you probably already have a 1Mb (Fatter Agnus) fitted; you can check this using AVAIL in Shell. If you have 1Mb of Chip memory, that is the most that machine supports. The cost of upgrading to 2Mb Chip (Super Fat Agnes) is very prohibitive – a

second-hand A500 Plus would be a better bet. **MS**

ADDRESSES OUT OF STEP



I used to have problems using *PageSetter II* with my *DeskJet 500*, and I

was grateful to you for recommending the *Jamdisk* with the appropriate driver that has the 10" graphics length restriction removed. I bought this, and things are good in that department, though I still can't print any nearer to the foot of an A4 page than half-an-inch. Is this normal?

DRIVE TIME



I use *TransWrite* for word processing but cannot get italics, bold or

underline facilities from my *Star LC-20* without first booting from the *Workbench* disk.

I have loaded the *EpsonX[CBM_MPS-1250]* driver from the *Workbench* disk, but cannot load this on the *TransWrite* disk – all the preferences settings are copied to the *TransWrite* disk except for the printer type, I seem only to have Custom or Generic options. Help.

**HW Adams
Harpenden
Herts**

To fix this problem copy the *EpsonX[CBM_MPS-1250]* printer driver file from the *DEVS/PRINTERS* directory on your *Workbench* disk into the *DEVS/PRINTERS* directory on the *TransWrite* disk. **JW**

JARGON BUSTING • JARGON BUSTING

Font – The group of letters, numbers and special characters that comprise one variation of typeface, eg: 12pt Times, 12pt Times Bold, 12pt Times Italic. Sometimes (mistakenly) used in desktop publishing to refer to a type family.

HAM – Hold And Modify is an Amiga graphic mode allowing all 4096 colours to be displayed at once, with certain restrictions on adjacent pixels.

IFF – Interchange File Format is a means by which data from different graphics or sound sampling programs are saved in a compatible way. It allows data to be exchanged between programs very easily and avoids the situation on, say, the PC where dozens of different graphics packages each save data in incompatible formats.

Pixel – A pixel (rectangular picture element) is the smallest addressable area on the screen, so a screen's resolution is measured in terms of number of pixels displayable across by number of pixels down.

Virus – A small program that can lie hidden in memory or on a disk, duplicating itself on to any disks inserted in the machine, and generally causing havoc. There are many virus killers available in the public domain designed to deal with this menace.

My main problem, however, is with *Protext 5.5* and its printer driver for the DJ500.

Recently I started to use *Protext's* mail merge facility. I created a small list of addresses as per the instructions in the manual, and then set about making a letter template which would call up the addresses and insert them in each letter accordingly. Fine so far. My troubles started when I tried to persuade *Protext* to print the addresses in label form.

I copied the program in the manual, which is supposed to allow you to do this (a copy of which is

attached), and set the thing running. But, no matter what I did, the printer ignored the 'ignore form feed' stored command >FF OFF and printed just two addresses side by side before ejecting the page and moving on to the next.

So I started fiddling with configuration menus. Eventually, by setting the Ignore Reset option in the printer drivers menu to Yes, I got the printer to print each pair of addresses side by side, and on one sheet of paper. But all of a sudden my top margin had gone from zero to what looked like about four lines, as a result of which the labels soon

got out of step and did not fit correctly over the A4 sheet of labels that I had bought.

I have tried changing the page length, but it's obvious that a length of nine lines is what is required.

How do I persuade the printer not to leave such a big gap at the top of the page?

Mark Ogler
St Sampsons
Guernsey

The DeskJet needs to keep hold of a certain amount of paper in order to force the page out of the printer, so it reserves approximately half an inch at the bottom for this. To get right down the bottom you'd need to use continuous stationery.

The *Protext* >ZM stored command will zero all margins, so stick this one right at the top of your template. Then you can use the >TM stored command to set the top margin to whatever, if anything, you require. Likewise you can use the >LM command to set the left margin.

It might also be wise to use a >PA directly after the last printable line of the template to throw a new page, or in this case (with >PL 9) down to the top of the next label.

Lastly, make sure your template is not more than nine lines in length; place the cursor on the last line and look at the number next to 'Line' in the title bar. Remember that any blank lines in your template above and below the address part will get printed as blank lines. Also remember that the top margin figure forms part of the page length, so a top margin of one line reduces the printable page length by one line. **JW**

RAM SPEEDS



My A3000 is currently fitted with 2Mb of 100ns chip RAM. Bearing in mind that I am planning on upgrading to a 68040 board in the near future, would it be possible to replace this with 60ns static column RAM instead? What are the speed limits of Chip and Fast RAM?

RMC Kleinsmiede
Manor Park
London

Firstly, there is no way of making your Chip RAM go any faster. By using static column Fast RAM on the A3000's motherboard you can speed RAM access up quite considerably. You will not be able to add 60ns RAM to the motherboard and run it at that speed, the computer is unable to do this. You can, however, add 60ns (or even faster!) to the 68040 card, and the '040 will then be able to access that at full speed if the accelerator card supports it. **TS**

BACKGROUND MUSIC



I have composed some music using *MED 3.20* and would like to know how I

can get modules to play in the background whilst, for instance, viewing my database. Unfortunately I can only seem to get my Amiga to do one thing or the other.

Chris Wright
Bowden
Cheshire

The *MED* player routine, called *medplayer*, should be on your *MED* disk and if you want the music played as part of a separate AmigaDOS background process you should use AmigaDOS's run command like this:

```
run medplayer <songname>
```

PAO

DIGITISE IN COLOUR?



I am considering buying NewTek's *Media Station* bundle (*DigiView Gold 4*,

DigiPaint 3 and *Elan Performer 2*) along with a mono video camera.

I've seen an Hitachi camera for less than £200 but I wonder if it really is possible to get colour images from a mono camera using the filter set provided with *Media Station*?

My main reasons for wanting this set up are:

- To create a slide show of colour images and
 - I would also like to do a sort of "Creature Comforts" animation.
- Could you please tell me how this is done, what other software/hardware I would need (I already have *DPaint IV*) and also how to add sound effects and, if possible, speech. I would also like to purchase a graphics tablet – can you recommend one?

Steven Jackson
Wythenshawe
Manchester

I really wonder whether you will need *Elan Performer 2* and *DigiPaint 3* as you mention that you've already got *DPaint IV*, which has a lot in common with these programs. The only major advantages of *Elan Performer* that I can think of is that you can mix and match picture formats and load images as required from disk, though since you only have one disk drive you will be limited by the amount of data you can display without constantly swapping disks. *DigiPaint 3* has some nice brush features which *DPaint* doesn't have, but *DPaint* probably has the edge in the HAM stakes now.

Believe it or not, it is possible to

NO PAL OF MINE



When using *Pen Pal* from my GVP 105Mb hard drive I often get crashes when opening documents and using the spelling checker. The abort code is 80000003. Can you explain what this code is?

Also, when printing a document from *PageSetter II* I often play a game while I am waiting, using the Amiga's multitasking abilities. However the speed of the game is badly affected. Would buying more memory solve this problem?

Robin Davey
Billericay
Essex

The abort code is meaningless unless you are an extremely knowledgeable Amiga programmer. Don't worry about it. What? Oh all right. It means "address error". Any the wiser? No, neither am I.

If it only happens sometimes, not every time you open a *Pen Pal* document, the bug is going to be difficult to track down. It could be a very large number of things. You should contact the *Pen Pal* developers, or the UK distributors of *Pen Pal*, and report the problem. And if this only happens when loading from hard disk you ought to contact GVP and/or the distributor from which you bought the hard drive.

However if you haven't registered your software/hardware it may not be too eager to speak to you because there's a possibility that you are using a pirated version. This is why you should always register any hardware or software that you buy. (Did you hear that at the back?)

No, more memory won't speed up your games. **JW**

grab colour images using the colour filters supplied – otherwise there would have been a large number of very angry *DigiView* users and NewTek would have been sued for fraud! Such a system works by filtering the coloured world into the three primary red, green and blue components required to make up a full colour image when using light, as opposed to paint. These components are recombined electronically to make a colour picture inside the computer. I know it works because I often use such a setup myself!

Creature Comforts (and Nick Park's other Plasticine masterpieces) are made by recording each scene on film, frame by frame, making tiny adjustments to the characters and other items between takes, to create the illusion of continuous movement when the film is played back at speed. It takes a very painstaking and dedicated animator to produce such work. You can, of course, use *DigiView* to grab images one by one from your own animation sets, making the adjustments in between each grab. Be warned though, you could end up with *huge* amounts of digitised data – for instance 10 seconds of finished animation recorded at 12 frames/second in lo-res colour could require around 6Mb of storage alone, even before the single frames are compressed together to form an animation. OK, I'm generalising here, but you get the idea. Unless you have a single frame video recorder to build your animation onto you'll have to play it back with your Amiga, which will probably mean that you'll need to invest in a hard disk and more RAM. Of course, if you have access to a single frame VCR, why not record your animation directly to the deck, cutting out both the digitising and the inevitable quality loss? Maybe that's why film is still the preferred medium of those who don't have access to mega-computers and mega-budgets – it requires a lot less equipment than a computer/video setup and the quality is usually superior.

Again, computers *can* be used for adding sound, and by using a system such as Rombo's *Take 2* it is possible to add sampled sounds to an animation, but again large amounts of data are involved for anything other than the most cursory music or spot effects, and so corresponding amounts of storage space are needed, especially if anything approaching hi-fi quality is required, hence sound will usually be 'dubbed' onto the finished film or video from more traditional sources – audio tape, etc.

I'm sorry to be so brief about this, but it's a very big topic which can't really be adequately covered in a column like this. **GW**

IFFY IMPORTS



Could you please tell me how to import standard IFF pictures into GFA Basic?

Paul Skippings
Great Yarmouth
Norfolk

The easiest way is to convert the IFF picture to an Image structure and use that. The GFA demo program called IFF_TO_BOB.GFA does these (and other) translations – for the nitty gritty details get hold of a copy of AS 10 and read Dean Cracknell's GFA Basic article! **PAO**

A800 OR WHAT?



For some time I've been looking to upgrade my 1Mb twin drive A500 to a larger

Amiga. I use it equally for games and applications and was intending to get an A1500. Then came the A1500 Plus and there are even rumours of an A800. However, I do not want the incompatibility problems from a 68020 and a Fat Paula. I do want the following though: 1Mb Chip; two 2Mb floppy drives; 14Mhz 68000; Zorro slots and WB2.04.

I am assuming Commodore will be upgrading the A1500 to this specification in light of the new machines, but if not what should I go for? Should I just buy an A1500 Plus and upgrade later or would this not work? I will also be fitting the GVP Impact IIHC+8 with 1Mb.

Simon Richards
Twickenham
Middlesex

The Amiga series seems to be in a constant state of flux at the moment and no-one seems to know what is going on – including Commodore UK. All that can be said for certain is things will not stay the way they are for very much longer; as far back as the *Amiga Shopper Show*, pirate bulletin boards were carrying early releases of Workbench 3!

The system you have described would be incompatible with a lot of games anyway because you want Kickstart 2, high-density drives and the Fatter Agnus. In such a case you might be well advised to bite the bullet and go for a 68020 platform.

A double speed 68000 would not give a great increase in performance, probably about 20-30 per cent. If you need Zorro slots, you will need at least an A1500 Plus, but it is my considered opinion that it – and the A2000 – are outdated machines and likely to be dumped very soon. My advice is either buy an A1500 Plus now or better still, wait!

MS

FOREIGN FLOPPIES



I destroyed my DF1: drive, so I acquired a replacement disk drive from work. Unfortunately when I plug it in DF0: will not respond.

Do I have to get a special disk drive, or can I use a 720Kb or 1.44Mb PC disk drive? I still have all the casing and wiring from my original disk drive. I have tried all the jumper settings for AT or EISA machines.

Can I put a Mac HDD on my Amiga, if so, what interface do I need?

David Field
Reading
Berks

As you have found standard PC floppy drives won't always work with the Amiga. Some 720Kb drives, with the right coaxing, can be made to work, but not all of them. Your best bet is to get a good quality Amiga specific drive. There is nothing worse than a slightly-faulty drive slowly losing all your important data.

An Apple High density drive can't be linked to the Amiga, standard 800Kb Macintosh drives can either be used with the A-Max II Macintosh emulator or with the Mac-2-Dos interface, which will enable you to read Macintosh disks on your Amiga with a Mac drive. **JR**

VIRUS ALERT



About 20 minutes after I load a 1Mb game or *DPaint 3*, the screen fills with lines

and blocks and I have to re-boot, losing my work. When trying to copy a disk, I often get the message "Not a DOS disk." This happens with the games in the Cartoon Classic Pack and with the free disks with Amiga magazines. How do I make a copy of a disk? Lastly can I connect a VGA Analogue monitor to the A500 Plus?

A Whitehill
Burgess Hill, West Sussex

a) This sounds like you could have a virus, especially if it works fine for a while and then goes wrong. I

recommend you get a good virus checker, such as "VirusChecker 6.05" and check all of your disks. If this does not work, you will have to return the Amiga to your dealer and have it repaired.

b) You won't be able to copy a lot of game disks, as they are copy protected to stop piracy. Most magazine disks, however, do not have this copy protection and should copy fine. To copy a disk on the A500 Plus, insert the disk when you have loaded the "WorkBench", select the disk's icon (By clicking on it once) and choose "Copy" from the "Icons" menu, and follow instructions. If you get the message "Not a DOS Disk" then you will not be able to copy the disk.

b) In theory, yes, but you will only be able to use the special modes, such as productivity mode, unless you have a flicker fixer. If you are going to plug a good quality monitor into the Amiga, its best to use a multisync monitor, as you will be able to use all screen modes on that. **TS**

FED WHO?



The May edition of *Amiga Format* explained how to design a new font for

use with the DTP *PageSetter 1.2* cover disk, using a *FED* utility which was said to be supplied with the Amiga. Yet I can find no trace of *FED* on my disks, and I suspect it was pre-WB2?

What I have got though (on Extras2.0) is a program called Fountain, but no instructions for it in the manual. When I try to run it, it fails with the message: "Cannot open diskfont.library version 37". I've run out of ideas. Can you help?

Brian Austin
Egham

You're right in guessing that *FED* was a pre-WB2 utility. It wasn't the best font editor ever written, only allowing you to create fonts of up to 32 pixels wide by 32 pixels high (four times the size of the default topaz font), and I guess that with the new Compugraphic font support Commodore decided that *FED* wasn't worth re-writing.

To use Fountain you must first have the larger 'diskfont.library' file in LIBS:, which is the LIBS directory on the disk you boot from. You'll find this file in the LIBS directory on the AmigaFonts2.0 disk. So copy it from there into the LIBS directory of your Workbench disk (or whatever else you boot from), and after re-booting the machine you will then be able to use the Fountain program. After running it, press the Help button to get instructions on how to use it.

But Fountain is not a font editor. I've yet to come across a good, stable shareware or public domain bitmap font editor, so the only thing I can recommend is *Personal Fonts*

OKIMATE 20 RIBBONS



I have an Okimate 20 printer and I have searched Southampton high and low for a printer ribbon. Could you tell me where I can purchase one?

E Ervin
Southampton

Sure. Try Caspell Computer ☎ 0202 666155, or write to the company at FREEPOST, Poole BH15 2BR. JW

Maker from HB Marketing (☎ 0753 686000), reviewed in issue 7. JW

NO GO 1901



I'm having difficulty getting my Commodore 1901 monitor to work with

an RGB input. I've wired up the cable as follows:

Amiga (23 pin)		1901 (9 pin)
16	Ground	1
9	Red	3
8	Green	4
7	Blue	5
6	Intensity	6
11	H Sync	
12	V Sync	9

but it's no go, even though the monitor works fine with composite video input. I've tried a variety of configurations but I can't stop the picture rolling slowly with an RGB input, even though the rest of it appears to be OK.

Bryan Hartley
Poulton-Le-Fylde
Lancs

Once again, I have to be the bearer of bad news – there's a problem with using the 1901 and the Amiga in that one of the synchronisation signals from the Amiga is the wrong polarity (I suspect it to be the H-sync, which is why you're having the rolling trouble). Furthermore, even though it is possible to correct this problem by the use of a custom lead, you'll still only be able to display a maximum of 16 colours on the monitor, as this is the maximum available via the 1901's TTL circuitry. You'd be better off sticking to the composite input or getting a proper SCART monitor, but

if you really want to connect your Amiga to the 1901, contact Meedmore Distribution ☎ 051 521 2202 and ask for a K2133 lead. GW

FLOATING NUMBERS



I am in the process of learning to program in C and am using the NorthC compiler.

According to the documentation floating point scanf() operations are not supported but one of the exercises I have been trying to carry out requires me to input a floating point number using:

```
printf("enter degrees in  
fahrenheit:\n");  
scanf("%lf", &fahr);
```

My question is can I do this without using scanf()?

Ronald Walters
Walsall

NorthC's printf() and scanf() functions have a number of shortcomings and the floating point scanf() snag you've encountered is one of them. Luckily it is not too disastrous because the amiga.lib library contains some reasonable fast-floating-point <=> ASCII-string conversion routines (these work well with NorthC because NorthC uses the ffp format internally). The bottom line is that you can use scanf() to input the number as a text string and then use atof() and fpa() to convert numbers. You'll need to get the full details from the RKMs but I'll give you a piece of NorthC compilable code to get you started: This program reads a number as a text string, converts it to ffp form, does

the Fahrenheit<=>Centigrade conversion, translates the ffp result back to ASCII form, and then displays the result via printf():

```
#include <stdio.h>  
#include <math.h>  
char data_buffer[20];  
float temperature;  
main()  
{  
    float afp();  
    printf("Enter degrees \n  
    Fahrenheit\n");  
    scanf("%s", data_buffer); /*  
    read number as string */  
    temperature=afp(data_ \n  
    buffer); /* convert to ffp */  
    temperature=(temperature- \n  
    32.0)/1.8; /* F to C */  
    fpa(temperature, data_ \n  
    buffer); /* convert to string */  
    printf("%s\n", data_buffer); \n  
    /* and display */  
}
```

The output comes back in this format...

```
[sign][digits].[digits][E][sign][digits]  
  
<--MANTISSA--> <EXPONENT>
```

and if, for example, you enter 68 degrees Fahrenheit you don't get 20 back you get +.20000000E+02. It is easy enough to convert the exponent based number to a more conventional form and this should provide a nice little exercise in string manipulation for you. PAO

ROCK HARD PROBLEMS



a) I have a RocLite (external disk drive) fitted to my A500 Plus and it

continually generates the message "Hard Error 88x" where X is between 0 and 9. This occurs when either formatting or copying. However, if I use the same disk in the internal drive it works fine. Is my external drive at fault?
b) I considering buying the RocHard. I would like the 105Mb system with 8Mb RAM but I would appreciate your comments on this since it is a lot cheaper than the SCSI type.
c) I have been told I can upgrade the A500 Plus to 2Mb Chip RAM by adding an extra 1Mb in the trapdoor. If so does this mean I can have a total of 10Mb?
d) Finally, what does the ".K" mean in a script file? A number of scripts I have tried to use with this give me a "bag args" message.

WT Case
Xemxija Hill
Malta

a) There is a problem with the RocLite and A500 Plus machines

which only came to light after the A500 Plus machines started shipping. (The compatibility issue raises its ugly backside again!) Essentially it goes something like this. Under the original Kickstart, when you wrote a file to disk, the write operation took place in three parts. In the first phase data was written, next there was a short delay in which the motor was switched off, finally the motor was activated again and the directory information was written to block 880.

This was not an ideal solution because people tended to reset the machine after the first (data) write completed – ignorant of the fact the write cycle had not completed. (This can be demonstrated by editing the startup-sequence on a 1.3 machine and write protecting the disk during a reboot). To cut a long story short, Commodore fixed this in Kickstart 2 and altered the motor on timing, so the drive access light stays ON until the whole operation is completed. Unfortunately, this affects the RocLite so badly, some units cannot write to disks on A500 Plus machines.

Roctec is aware of this and has modified the RocLite to suit. This is not covered by your normal warranty or statutory rights since it constitutes a design change on Commodore's part and the drive is functioning within design specifications. It's not all black though. Roctec has assured me the modification is quite simple and as soon as it releases details, I expect most suppliers will make the change for a minimal charge.

b) There is really no advantage in having a SCSI (Small Computer Systems Interface) drive unless you want to upgrade with things such as SCSI graphics tablets, tape streamers, printers and so on.

The SCSI interface allows up to seven peripherals, whereas IDE supports only 2. On the up side, the RocHard can be upgraded to support SCSI later on and the IDE mechanisms are claimed to be faster.

c) Yes. 8Mb in the hard drive and 2Mb in the machine – this is one of the added advantages of having an A500 Plus.

d) .K or .KEY is the argument string. This allows scripts to have arguments just like real AmigaDOS commands. For example, if a script started with:

```
.KEY Start/A, End/A
```

you would have to supply two parameters. You can see how this works in practice by reading my regular AmigaDOS column which regularly features some very tricky scripts. MS

JARGON BUSTING • JARGON BUSTING

Floating point – One way of storing non-whole numbers, ie those with decimal points. It is called floating point because there need not be a fixed number of digits before and after the decimal point (as there is, for example, with Blitz Basic), so the decimal point can 'float' as required.

Script – Meta-AmigaDOS command built from other AmigaDOS commands. A script is created using an editor, each of the commands it contains is executed one after another.

Startup-sequence – A program which is executed every time the Amiga is switched on and after every reset. It sets up the system so that it is usable from Workbench, and may be customised by those who have unusual hard or software requirements.

BCS SUMMER OFFERS

**LOOKING FOR DISKS & BOXES
LOOK NO FURTHER**
REMEMBER ALL DISKS SOLD BY BCS ARE FULLY GUARANTEED

DISKS ! DISKS ! DISKS !

100% CERTIFIED ERROR FREE

50	3.5"	DS/DD	£22.99
100	3.5"	DS/DD	£37.99
150	3.5"	DS/DD	£52.99
200	3.5"	DS/DD	£69.99
400	3.5"	DS/DD	£138.99
500	3.5"	DS/DD	£165.99
1000	+ Call for spot price		

All prices include VAT/free labels
& free delivery

DISKS + 100 CAP LOCKABLE BOXES

100% CERTIFIED ERROR FREE

50	3.5"	DS/DD + 100 cap box	£25.99
100	3.5"	DS/DD + 100 cap box	£40.99
150	3.5"	DS/DD + 100 cap box	£56.99
200	3.5"	DS/DD + 2 100 cap boxes	£74.99
400	3.5"	DS/DD + 4 100 cap boxes	£147.99
500	3.5"	DS/DD + 5 100 cap boxes	£174.99
1000	3.5"	DS/DD + 10 100 cap boxes	£ call

All prices include VAT / free labels
& free delivery

3.5" DELUXE LOCKABLE BOXES

40 Capacity	£4.10
100 Capacity	£4.50

3.5"/5.25" 10 CAPACITY BOX £1.00

NEW A600 £358

NEW A600 PLUS 20Mb HD £454

DISKS + BANX STORAGE BOXES

100% CERTIFIED ERROR FREE

50	3.5"	DS/DD + 80 Cap Banx Box	£31.99
100	3.5"	DS/DD + 80 Cap Banx Box	£45.99
150	3.5"	DS/DD + 2 x 80 Cap Banx Boxes	£68.99
200	3.5"	DS/DD + 2 x 80 Cap Banx Boxes	£85.99
500	3.5"	DS/DD + 5 x 80 Cap Banx Boxes	£199.99

All prices include VAT/ Free labels & free delivery

HIGH DENSITY 3.5" DISK 60P EACH
(OR 100 3.5" DS/HD FOR £61 INCL. P & P /
LABELS/VAT)

5.25" DS/DD Disks21p each
5.25" DS/HD Disks39p each

10 TDK BRANDED DISKS DD £6.50 HD £10.50

GVP 52 MB HD £339

PLEASE CALL FOR LATEST PRICES ON ALL GVP PRODUCTS

ACCESSORIES

1/2 Meg Upgrade	£27.00
1/2 Meg Upgrade + Clock	£29.00
1000 Labels (coloured)	£8.00
1000 Tractor Labels (white)	£10.00
Naksha Mouse	£19.50
Mouse Mat	£2.75
Mouse Holder	£2.50
1MB Upgrade (A500P)	£45.00
Amiga Ext Cumana Drive	£58.00

JOYSTICKS

Zipstick	£11.50
Stingray Joystick	£13.50
Cheetah 125+	£7.50
Cheetah Star Probe	£10.00
JetFighter	£12.50
Topstar	£21.00
Black Cruiser	£10.00

BCS SUMMER OFFER PACK SIX

Philips CM8833 Mk II Colour Monitor UK Spec, lead + F19 Flight
Simulator + 1 year on-site warranty
ONLY £219

3.5" STACKABLE BOXES

60 Capacity Lockable	£10.00
80 Capacity Banx Lockable Box	£9.95
150 Capacity Posso Box	£15.00
5.25" 70 Cap Posso Box	£16.50

5.25" 50 Cap Lockable	£5.10
5.25" 100 Cap Lockable	£5.90

BCS SUMMER OFFER PACK 1

A500 1.3, Batman, Gremlins
Deluxe Paint II, 10 3 1/2 DS/DD
Disks, Disk Box, Mouse Mat,
Microswitch Joystick, Tailored
Dust Covers

**BCS PRICE
£299
(Limited Stock)**

BCS SUMMER OFFER PACK 2

A500 1.3, Infofile, Maxiplan,
Prowrite II, 10 3.5 DS/DD Disks,
Disk Box, Mouse Mat,
Microswitch Joystick, Tailored
Dust Cover

**BCS PRICE
£299
(Limited Stock)**

BCS SUMMER OFFER PACK 3

New A600, Deluxe Paint III,
Mystery game, Superbase
Personal, Spritz, 10 3.5 DS/DD
Disks, Disk Box, Mouse Mat,
Microswitch Joystick, Tailored
Dust Cover.

**BCS PRICE
£379**

BCS SUMMER OFFER PACK 4

New A600 20Mb HD, Superbase
Personal, Deluxe Paint II, 10 3.5
DS/DD Disks, Disk Box, Mouse
Mat, Microswitch Joystick,
Tailored Dust Cover

**BCS PRICE
£469**

BCS SUMMER OFFER PACK 5

Commodore CDTV Player, Welcome
Disk, Caddie, Keyboard, Disk Drive,
Mouse, Workbench 1.3, Manuals,
Infra Red Remote Control, Mouse
Mat, Microswitch Joystick, 10 3.5
DS/DD Disks, Disk Box.

**BCS PRICE
£549**

DUST COVERS

A500 Dust Cover	£3
A600 Dust Cover	£3
Star LC200 Dust Cover	£3.50
Star LC24 200 Dust Cover	£3.50
Philips CM8833 Mk II Cover	£3.50
Citizen Swift 9 Cover	£3.50
Citizen Swift 24 Cover	£3.50

BCS SEPTEMBER PACK SEVEN

Star LC-200	£199.00
Star LC-24 200	£259.00

Prices incl. VAT/lead

All prices include VAT. Add £4 P&P / add £8 2 day / £10 next day
Call in or send cheques / postal orders to:

BCS Ltd., 349 Ditchling Road, Brighton, East Sussex BN1 6JJ

ORDER HOTLINE:

Tel 0273 506269 or 0831 279084

All offers subject to availability. Prices may change without notice.



OVER 500 QUALITY AMIGA PRODUCTS

DESK TOP VIDEO PERIPHERALS

ROCGEN PLUS £129.99

A superb value Genlock with overlay & faster controls - RGB pass thru.

ZYDEC SCANNER £99.99

In our experience, this is by far the best B/W hand scanner in this price bracket.

VIDI "The Complete Solution"	£139.99
VIDI	£89.99
RGB SPLITTER Rombo Electronic type	£57.99
ROCGEN GENLOCK SAVE LEEs	£99.99
SUPERPIC - Colour Digitiser & Genlock	£499.99
SUPERPIC ANIMATE	£629.99
COLOURPIC colour digitiser	£419.99
COLOURPIC ANIMATE	£529.99
CABARET FOR COLOURPIC/SUPERPIC	£28.99
CABARET PLUS	£87.99
REDALE SUPER 8802 SVHS GENLOCK	£499.99
HITACHI MONO CAMERA	£179.99
G2 VIDEOCENTRE PLUS - SUPER8	£1099.99

DIGIVIEW MEDIATION

DIGIVIEW GOLD DIGITISER (the best for use with a camera) + DIGIPAIN 3 + ELAN PERFORMER. ALL 3 FOR JUST £129.99

ACCESSORIES & SPARES

AMIGA ROM SWITCH

Our Keyboard operated Two-way Rom switch enables you to use either of 2 Workbench mins. To switch over, just hold down Control / Amiga / Amiga keys until you hear a beep. (Release them before the beep to 'warm start' with the current rom.)

Only £27.99 (excl. roms)

Please state which you have Amiga when ordering.

KICKSTART 1.3 ROM	£29.99
KICKSTART 2 ROM	£39.99
OFFICIAL WKBENCH 2 UPGRADE KIT	£79.99
FATTER AGNUS 8372A	£30.99
SUPER DENISE	£39.99
GARY	£39.99
8520A I/O CHIP (Drive & printer port)	£15.99
AS20 MODULATOR	£29.99
AMIGA INTERNAL DRIVE	£59.99
MAINS SUPPRESSOR BLOCK 4WAY	£12.99
UPGRADED A500 POWER PACK	£39.99

EXTERNAL DRIVE POWER SUPPLY £29.99

This new product powers up to 3 external Amiga floppy disk drives. By relieving the Amiga power supply of this burden (for which it was not designed), you will increase its reliability considerably. Just plugs straight in.

ACCELERATORS & EMULATORS

GVP G-FORCE 68030 ACCLR from	£599.99
GVP G-FORCE 68040 (28MHz) ACCLR	£1999
PC286 EMULATOR FOR GVP DRIVES	£249.99
KCS PC CARD v3 + DOS4	£204.99
KCS WITHOUT MSDOS	£189.99
KCS 2000 PC BOARD ADAPTOR	£64.99
AT ONCE PLUS 16MHz PC EMULATOR	£219.99
IMPACT VISION 24 VIDEO CARD	£1549
A1500/2000 ADAPTOR FOR ABOVE	£39.99

ALL GVP PRODUCTS AVAILABLE

MICE, JOYSTICKS, TRACKBALLS

NAKSHA MOUSE + OPERATION STEALTH OUR PRICE - £24.99

Includes Mouse mat & holder

BUDGET REPLACEMENT MOUSE	£15.99
CDTV KEYBOARD - BLACK	£49.99
CD TV TRACKBALL CONTROLLER	£69.99
GRAVIS MOUSE STICK CONTROLLER	£65.99
DELTA 3A ANALOGUE JOYSTICK	£14.99
ZIPSTICK AUTOFIRE	£13.99
QUICKJOY SUPERSTAR	£13.99
QUICKSHOT TOPSTAR	£19.99
QUICKSHOT INTRUDER JOYSTICK	£29.99
MEGA STAR HEAVY DUTY JOYSTICK	£26.99
SPEEDKING AUTOFIRE	£11.99
CHEETAH BUG JOYSTICK	£14.99
OPTICAL MOUSE	£37.99

MOUSE / JOYSTICK PORT SWITCH £12.99

- * Has sockets for mouse & joystick.
- * Push button selects mouse or joystick.
- * Uses no power unlike other types.
- * Compatible with many dongles.
- * Saves wear & tear on mouse port.

AMIGA BOOKS

* = PRICE INCLUDES PROGRAM DISK

AMIGA FOR BEGINNERS	£14.99
AMIGA BASIC INSIDE & OUT	£21.99
AMIGA SYSTEM PRO GUIDE	£32.45
ADVANCED SYS PROGRS GUIDE	£32.45
AMIGA DISK DRIVES 1 & 0	£27.95
AMIGA DOS INSIDE OUT	£22.99*
AMIGA PRINTERS 1 & 0	£31.95
AMIGA DESKTOP VIDEO	£23.95
AMIGA 3D GRAPHICS	£17.95
MAKING MUSIC ON AMIGA	£27.99*
AMIGA GRAPHICS 1 & 0	£31.95
AMIGA MACHINE LANGUAGE	£17.99
AMIGA C FOR BEGINNERS	£17.99
AMIGA C FOR ADVANCED PROGRMS	£27.99
AMIGA DOS MANUAL (BANTAM)	£22.95
BEST AMIGA TRICKS & TIPS	£26.99*
MAPPING THE AMIGA	£20.95
MACHINE LANGUAGE FOR BEGINNERS	£19.95
ELEMENTARY AMIGA BASIC	£14.95
ADVANCED AMIGA BASIC	£16.95
USING AREXX ON THE AMIGA	£26.99
FIRST BOOK OF THE AMIGA	£16.95
USING DELUXE PAINT	£19.95
THE IMAGINE COMPANION	£24.95*
USING IMAGINE 2	£24.95
HARDWARE REF MANUAL	£21.95
AMIGA USER INTERFACE GUIDE	£18.99
68000 ASSEMBLY LANGUAGE PROGR	£24.95
AMIGA ROM KERNEL REFERENCE BOOKS - 2	
AVAILABLE - LATEST EDITIONS each	£28.95
VIDIA PAGESTREAM GUIDE	£4.95
LITTLE BLUE WORKBENCH 2 BOOK	£14.95

DISKS & DISK BOXES

150 SIZE POSSO MEDIA BOX	£19.99
40/50 SIZE LOCKABLE BOX	£6.99
80 SIZE LOCKABLE BOX	£7.99
100 SIZE LOCKABLE BOX	£8.99
TDK BRANDED Inc labels	£7.99 / 10

DUST COVERS

SEAL n TYPE KEYBOARD SKIN. Waterproof & moulded to fit snugly over each key, but flexible enough to type thru. AMIGA 500, 500+, 1500, 2000 £12.99 (State which when ordering please)

BACKUP UTILITIES

X COPY PRO £33.99

Latest version - complete with Cyclone external drive adaptor. Highly successful.

X COPY CYCLONE ADAPTOR £12.99

AMI SUPERCARD £34.99

(Requires an external drive)

OTHER DISK UTILITIES

ACTION REPLAY FOR A500	£57.99
ACTION REPLAY FOR 2000	£67.99

NB. Making backups without the permission of the copyright holder is illegal.

TOP 30 AMIGA GAMES

ADDAMS FAMILY	£17.99
ANOTHER WORLD	£17.99
AGONY	£17.99
AIR LAND & SEA	£24.99
AWARD WINNERS	£17.99
BLACK CRYPT	£17.99
CASTLES	£19.99
CHUCK YEAGERS ADV FLT	£7.99
CHART ATTACK	£19.99
EPIC	£21.99
FORMULA 1 GRAND PRIX	£24.99
F15 IT	£24.99
GOLF	£24.99
GODS	£17.99
HARLEQUIN	£17.99
JAGUAR XJ220	£17.99
JIMMY WHITE SNOOKER	£19.99
JOHN BARNES	£17.99
KNIGHTS OF THE SKY	£24.99
LOTUS TURBO CHALLENGE	£17.99
LEMMINGS 1.1 DATA DISK	£12.99
OH NOT MORE LEMMINGS	£17.99
MEGALOV 1ST SAMURAI	£20.99
MY TANK PLATOONB	£24.99
PAPERBOY 2	£17.99
RACE DRIVIN	£17.99
SHADOWLANDS	£19.99
STEEL EMPIRE	£19.99
SUPERSKI	£17.99
THUNDERJAWS	£17.99
THUNDERHAWK	£20.99
ULTIMA 6	£20.99
VROOM	£17.99
WOLFCHILD	£17.99

PLEASE PHONE IF THE LATEST GAMES ARE NOT LISTED

EDUCATIONAL SOFTWARE

MORE TITLES IN NEXT COLUMN

BETTER MATHS (12-16YRS)	£19.99
BETTER SPELLING (8+)	£19.99
COMPENDIUM 6	£29.99
FIRST SHAPES (3-8YRS)	£12.99
FIRST LETTERS & WORDS (3-8)	£12.99
FUN SCHOOL 4 RANGE	£19.99
JUNIOR TYPIST (5-12)	£19.99
KID'S TYPE	£16.99
LET'S SPELL SERIES	£14.99
MAGIC STORY BOOK	£17.99
MATHS TALK (5-13YRS)	£18.99
MATHS TALK FRACTIONS	£18.99
MAVIS BEACON TYPING	£24.99
MICRO RANGE (LCL)	£19.99
MONEY MATTERS (4-7YRS)	£13.99
PAINT ME A STORY (3-10)	£21.99
PUZZLE BOOKS 1 & 2	£17.99
TARGET MATHS (4+)	£13.99

THINGS TO DO WITH. SERIES £16.99

MIDI INTERFACE 2

Our unique 5 port Midi interface 2 has In, Out & Thru sockets plus two additional switchable out / thru sockets for ingenious versatility.

NOW ONLY £27.99

Extra Midi lead 1.2m £1.99

Extra Midi lead 3m £3.99

STEREO SAMPLER 2

Our Superb sounding STEREO SAMPLER 2 uses a state of the art A/D chip which samples so fast, it captures every detail of the sound. Easily adjusted level control, connecting lead & free stereo sampling software. Fully compatible with all popular sampling software. NOW ONLY £39.99

SUPERFI 2 STEREO SYSTEM

We've looked high & low for a POWERFUL, QUALITY Stereo speaker system for use with Computers, keyboards, Stereo VCRs, Satellite Systems & Walkmans. Now we've found one - it is a 20 watt per channel, directly mains powered, 3 way speaker system. It has Bass, treble & volume controls & comes with connecting leads. Frequency response: 32Hz - 20KHz. ONLY £54.99

TOP AMIGA PROGRAMS

ADVANTAGE	NEW	£69.99
AMI ALIGNMENT		£42.99
AMIBACK	NEW	£44.99
AMAS 2		£89.99
AMIGA VISION		£89.99
AMOS		£34.99
AMOS - EASY	NEW	£26.99
AMOS 3D		£25.99
AMOS COMPILER		£22.99
ART DEPARTMENT PRO		£149.99
AUDITION 4		£38.99
AUDIOMASTER 4		£54.99
AUDIO ENGINEER		£179.99
BARS & PIPES		£109.99
BBC EMULATOR	ONLY	£30.99
BROADCAST TITLER 2		£169.99
CAN DO 1.6	NEW	£69.99
CASH BOOK CONTROLLER		£54.99
CROSS DOS		£27.99
DATAWORD		£119.99
DAY BY DAY		£23.99
DELUXE PAINT 4.1	NEW	£64.99
DELUXE MUSIC	NEW	£49.99
DELUXE VIDEO 3		£74.99
DEVPAC 3 - new version		£51.99
DG CALC		£29.99
DINOSAUR DISCOVERY KIT		£17.99
DIRECTORY OPUS		£29.99
DISK MASTER		£39.99
DISK MASTER 2		£49.99
DR T & TIGER CUB	A GIFT	£79.99
E TYPE		£29.99
EXPERT DRAW	NEW	£49.99
EXPERT 4D JNR	NEW	£37.99
EASY AMOS	NEW	£26.99
EXCELLENCE		£59.99
EXOTIC CARS FOR IMAGINE		£34.99
FLOW v3.0		£54.99
FRENCH MISTRESS	NEW	£16.99
GERMAN MASTER	NEW	£16.99
GB ROUTE PLUS		£59.99
GOLD DISK OFFICE	NEW	£99.99
HIGH SPEED PASCAL		£74.99
HISOFT BASIC		£49.99
HISOFT BASIC PROFESS		£59.99
HOME ACCOUNTS 2		£39.99
HOMEBASE	NEW	£24.99
HOTLINKS	NEW	£53.99
HYPERBOOK		£44.99
IMAGINE 2	NEW	£199.99
IMAGINE OBJECTS DISK		£84.99
ITALIAN TUTOR	NEW	£14.99
INTROCAD PLUS		£74.99
KINDWORDS 3	NEW	£39.99
LATTICE C v5.5AS C		£169.99
LINKWORD FOR TOURISTS		£28.99
MACRO 68000 ASSEMBLER		£39.99
MAILSHOT PLUS		£39.99
MAXIPLAN V4	NEW	£99.99
MEDIA SHOW		£54.99
MEGAMIX MASTER	NEW	£29.99
MUSIC X v1.1	BARGAIN	£54.99
MUSIC X JUNIOR		£39.99
PAGESTEAM 2.2		£159.99
PAGE SETTER 2		£44.99
PEN PAL	STILL ONLY	£54.99
PERSONAL TAX PLANNER		£29.99
PERSONAL FINANCE MANG		£24.99
PLANETS		£24.99
PROFESSIONAL CALC		£139.99
PRODATA	NEW	£75.99
PROFESSIONAL DRAW 2		£94.99
PROFESSIONAL PAGE 3		£169.99
PROTEXT v5.52	NEW	£99.99
PROWRITE v3.2		£89.99
QUARTERBACK		£44.99
QUARTERBACK TOOLS		£49.99
QUARTET		£37.99
REAL 3D BEGINNERS		£79.99
SCALA 500		£74.99
SCALA PROFESSIONAL		£199.99
SCULPT 3DXL		£109.99
SONIX ANIMATE 4D JNR		£79.99
SONIX		£18.99
SOUNDMASTER		£99.99
STEREO MASTER		£29.99
SUPERJAM	NEW	£69.99
SUPERBASE PROF 4		£199.99
SUPERPLAN		£69.99
SYSTEM 3e		£59.99
TAKE 2	NEW ONLY	£39.99
TECHNOSOUND	NEW	£29.99
TOPFORM	NEW	£59.99
TRANWRITE		£28.99
TURBOPRINT PRO	ONLY	£37.99
TV SHOW		£57.99
VIDEO EFFECTS 3D		£99.99
VIDEOSCAPE 3D		£59.99
VIDEO DIRECTOR		£109.99
WEATHER WATCHER		£16.99
WORLD ATLAS		£39.99
WORD PERFECT 4.1		£159.99
WORDWORTH 1.1		£89.99
3D CONSTRUCTION KIT		£39.99
3D PROFESSIONAL		£149.99

Educational titles are priced in blue



UNIT 1,
253 NEW WORKS RD,
BRADFORD, BD12 0QP

SALES:

0274-691115

FAX 0274 - 600150

HOW TO ORDER

FAST MAILORDER SERVICE

Order by phone using your ACCESS, VISA, SWITCH, CONNECT OR AMERICAN EXPRESS CARD. Order by Mail - sending cheque, bankers draft or postal orders made payable to TRILOGIC. Please add part postage & packing of £1.00 to orders under £100 or £2.00 to orders over £100. Optional 48hr delivery - add £3.50. Overnight carrier - add £5.50. (May take longer for outlying, remote areas. (Uk Mainland only). Saturday delivery - add £12.00. Datapost service available P.O.A. EXPORT ORDERS WELCOME. No vat - deduct 171/2%, but add carriage at cost. Open Mon-Fri 8 till 6, Sat 8-4pm.

Callers welcome - we're easy to find, just 1.5 miles from the M62. Easy parking.

Leave M62 at junction 26, take A638 to Bradford, uphill, after about 1.5 miles & just past the park, turn left once over a railway bridge. After 1/4 mile, look for us on left opposite a PO mail box.

Commodore dealer since 1984

AT AMIGA SUPERMARKET

ALL PRICES INCLUDE VAT

AMIGA 600 £369.99 AMIGA 600HD £469.99

- 1 MEG RAM
- 3.5" DISK DRIVE
- WORKBENCH 2
- BUILT IN TV MODULATOR
- BUILT IN 20 MEG HARD DRIVE (ON AMIGA 600HD MODEL)
- CAPTAIN PLANET (not with HD model)
- DELUXE PAINT 3 (not with HD model)
- Compatible with most Amiga 500 peripherals - eg External drives, Samplers etc.

ACCESSORIES PACK £29.99

All Amiga 600s have 12 months on site warranty, with optional (at extra cost) extended warranty.

AMIGA 500 PLUS

- BUILT-IN DISK DRIVE
- 1 MEG RAM
- MOUSE
- TV MODULATOR
- WORKBENCH 2
- BUILT-IN CLOCK
- LEMMINGS
- THE SIMPSONS
- CAPTAIN PLANET
- DELUXE PAINT 3

LOW COST 3 & 5 YEAR
EXTENDED
WARRANTIES
AVAILABLE. PLEASE
SEE BELOW FOR
DETAILS

LIMITED
STOCKS

ONLY £339.99

2 MEG VERSION £379.99

• ANTISTATIC DUST COVER £4.99

AMIGA 500 1.3 ONLY £289.99

- BUILT-IN DISK DRIVE
- 512K RAM
- MOUSE
- TV MODULATOR
- WORKBENCH 1.3

ACCESSORIES PACK £29.99

ADD JUST £15 FOR 1 MEG VERSION

• ANTISTATIC DUST COVER £4.99

AMIGA 1.3 WORKBENCH 2 OPTIONS

KEYBOARD SWITCHED (KS) ROM SWITCH £27.99
WORKBENCH 2 ROM £39.99
OFFICIAL WK BENCH 2 UPGRADE KIT £79.99

PHILIPS CM 8833MK2

with £19 & On site warranty
OFFICIAL UK MODEL
NOW ONLY £219.99

- 14" SCREEN
- STEREO SOUND
- RGB & COMPOSITE INPUTS
- FREE CONNECTING LEADS
- DUST COVER £7.99

COMMODORE 1084S

LATEST MODEL
NOW ONLY £239.99

- 14" ANTIGLARE SCREEN
- GREEN SCREEN SWITCH
- STEREO SOUND
- RGB & COMPOSITE INPUTS
- FREE CONNECTING LEADS
- DUST COVER £7.99

AOC CM326 HIRES MULTISYNC MONITOR

NOW ONLY £329.99

- 14" ANTIGLARE SCREEN
- 0.28mm DOT PITCH
- ANALOGUE RGB INPUT
- FLICKER FIXER COMPATIBLE
- FREE CONNECTING LEADS
- DUST COVER £7.99

TV TUNER

use your 8833 or
1084 monitor as
a tv.
ONLY £39.99

AMIGA 1500 Wkbench 2 £549.99

- 1 MEG RAM
- TWIN 3.5" DRIVES
- WORKBENCH 2
- ON SITE WARRANTY

Includes software pack
comprising: Dpaint 3, Home
Accounts, The Works, Elf,
Toki, Puzznic & 'Get the
Most from Your Amiga'.

AMIGA 1500/2000 ADDONS

8 MEG MEMORY CARD (unpop) £79.99
1 meg *9 SIMMs 1,2,4, or 8 required £29.99
SCSI CONTROLLER CARD £89.99
GVP 52MEG HARD DRIVE £279.99
GVP 120MEG HARD DRIVE £419.99

COLOUR PRINTERS

- CITIZEN SWIFT 9 £189.99
192cps draft, 48cps NLQ, 4 fonts. Friction & tractor feeds. Paper park. Low cost ribbons. 2yr warranty.
- CITIZEN SWIFT 9X B/W wide carriage £319.99
Wide carriage version of Swift 9.
- CITIZEN SWIFT 224D COLOUR £239.99
192cps draft, 64cps NLQ, a simplified version of the Swift 24, with similar print quality.
- CITIZEN SWIFT 24E £289.99
The What Micro Best Buy budget 24 pin printer. New 'E' model is even better - 216cps/ 72cps NLQ
- CITIZEN SWIFT 24X wide carriage £414.99

All Citizen Swift printers come with a free print enhancement disk similar to Turboprint which gives vastly improved print quality, especially with colour graphics. HURRY - LIMITED OFFER.

BLACK & WHITE PRINTERS

- CITIZEN 120D+ now down in price £129.99
Good budget 9 pin, with tractor & friction feeds.
- CITIZEN SWIFT 224D budget 24pin £224.99
- CITIZEN SWIFT 24E B/W £264.99
- CITIZEN PRODOT 9 - PROF QUALITY £199.99
- CITIZEN PROJET INKJET PRINTER £399.99
Special introductory price - 300dpi Laser quality. Fast & very quiet, A4 sheet feeder available.
- RICOH LP1200 LASER PRINTER £799.99
6ppm, 300dpi (400dpi with extra ram) A4 paper.
- SEIKOSHA SP1900 budget printer £124.99
- Black ribbons for Citizen printers £4.99
- Colour ribbon for Citizen 80column £15.99
- 120D/224D/SWIFT 9/24 DUST COVER £7.99

ALL PRINTERS SUPPLIED WITH FREE DRIVER DISK WHERE APPLICABLE / AVAILABLE.

Printer lead just £3.99 extra with all printers.

GOLDSTAR TV / MONITOR

- 14" SCREEN
- FULL REMOTE CONTROL
- SCART SOCKET (RGB input)
- FREE AMIGA LEAD

ONLY

£179.99

EXTERNAL DISK DRIVES

ROCLITE RF382C NOW £55.99

CUMANA CAX 354 3.5" DRIVE £58.99

All drives feature thru port & disable switch.

Using more than one external drive? - you need our External drive power unit - see opposite page for details.

HARD DRIVES

- GVP SERIES II HD8+ FOR A500 - NO DRIVE £169.99
- GVP SERIES II HD8+ 52 Meg Quantum drive for A500 & A500+ now only £359.99
- GVP SERIES II HD8+ 60 Meg Connor drive for A500 & A500+ now only £369.99
- GVP SERIES II HD8+ 120meg Quantum drive for A500 & A500+ now only £479.99
- GVP SERIES II HC8 HARD CARD - NO DRIVE £139.99
- GVP SERIES II HC8 + 52meg Quantum drive for Amiga 1500 & 2000 now only £279.99
- GVP SERIES II HC8 + 120meg Quantum drive for Amiga 1500 & 2000 now only £419.99
- 1MEG SIMMS FOR GVP (4meg max) each £29.99
- GVP A530 68030 (40MHz) + 52M HARD DRIVE, 1 MEG RAM EXPANDABLE TO 8 MEGS. A3000 PERFORMANCE £729.99
- QUANTUM 52MEG SCSI DRIVE - SPECIAL OFFER £169.99
- A590 52 MEG SCSI UPGRADE KIT inc cable £174.99
- A590 45MEG NEC SCSI UPGRADE KIT £189.99
- A590 105MEG NEC SCSI UPGRADE KIT £299.99
- A590 MEMORY UPGRADES - 1MEG - £30. 2MEG - £60.00

PRINTER ACCESSORIES & LEADS

- UNIVERSAL PRINTER STAND - open frame type with paper holder for all 80 column printers. £12.99
- TWO PIECE PRINTER STAND for any printer £7.99
- COPY HOLD - FREE STANDING OR CLAMP £16.99
- RIBBON REINKING SPRAY - SAVES £££ £11.99
- AMP1 1.8m longlead for parallel printers £9.99
- AMP 2 3m longlead for all parallel printers £12.99
- AMP 3 5m long lead for all parallel printers £16.99
- PRINTER PORT EXTENSION LEAD (M-F) £10.99
- PRINTER PORT TO SWITCH LEAD (M-M) £10.99
- PRINTER LABELS 98x36mm approx. /1000 £5.99

MONITOR LEADS & ACCESSORIES

- AL1 for most Scart tvs except some Goldstar & vcrs £13.99
- AL6 for Amstrad CPC monitor - with no sound £11.99
- AL6B for new CPC monitor with stereo sound £12.99
- AL7 for 1084 monitor inc audiolead (6pin Din plug) £14.99
- AL7P for new 8833/1084s - 9 pin D plug £14.99
- MODULATOR EXTENSION LEAD - £10.99
- MODULATOR SPLITTER - 2 way RGB adaptor £16.99
- MONITOR PLINTH WITHOUT SHELF £23.99
- MONITOR PLINTH WITH SHELF £33.99
- DELUXE MONITOR WORK CENTRE includes overall dust cover, mouse mat & holder, joystick/mouse extension £49.99
- 14" MONITOR TILT/SWIVEL BASE £12.99

SCART SWITCH £19.99

This compact switch box effectively gives your tv or monitor two scart sockets. It enables ANY two scart leads eg Amiga & vcr, to be connected to one scart socket on a Tv. Just push a button to switch from one to the other.

Our Extended Warranty & Insurance plans could save you ££s on accident & repair bills. Available for most hardware items.

MEMORY UPGRADES

AMIGA 500 PLUS upgrade TO 2 MEGS £39.99
Just plugs in. No soldering. Warranty unaffected. Gives you 2 megs in total.

A500 /500+ 1/2meg without clock £23.99

A500 / 500+ 1/2meg upgrade with clock £27.99

NOW IN STOCK ...

AMIGA 600 UPGRADES

AMIGA 600 1meg + clock (unpopulated) £29.99

AMIGA 600 1meg + clock complete £59.99

NOT ENOUGH FAST MEM? You need a...

BASEBOARD PLUS unpopulated £79.99

BASEBOARD PLUS with 1MEG £99.99

BASEBOARD PLUS with 2MEG £139.99

BASEBOARD PLUS with 4 MEG(max) £199.99

Uses low cost 256*4 D rams. Upgradable from 1/2 to 4 megs.

Internal fitting - invalidates warranty unless fitted by us.

Fitting charge £10.00 plus postage. Also available for Amiga 500 1.3. Please state machine when ordering.

ZYDEC 1.3MEG A500 UPGRADE fully populated £75.99

AMIGA 1500/2000 8 MEG RAM CARD (unpop) £79.99

SALES 0274- 691115

© TRILOGIC 1992. E&OE. Prices charged are those current on the day you order - occasionally, some may have change either way since this advertisement was completed (10/7/92). ORDERS FROM PLCs, LOCAL GOVERNMENT & EDUCATIONAL ESTABLISHMENTS WELCOME.

2WAY- £24.99. 3WAY - £27.99. 4WAY - £33.99

AMIGA PRINTER PORT EXPANDER

Fed up unplugging your printer every time you want to use a sampler or Digitiser? You need one of our PRINTER PORT EXPANDERS. These include free 2m cable worth £10.99 to connect them to Amiga. They are fitted with sockets identical to the Amiga's printer port - so your printer cables & other peripherals just plug straight in. All lines are fully switched. Can be operated with the Amiga switched on.

TAKE CONTROL

Wilf Rees
shows you how
to put your
Amiga in
charge of its
own actions
and how Micro
French can give
a little bit of
'savoir faire'

Control covers many aspects of computer applications, indeed any peripheral connected to a computer which is controlled from the keyboard falls under this category. This month I am going to start a two part article on using your Amiga along with the I/O port and accessories available from Switchsoft.

Equipment for control on the Amiga is a little thin on the ground, so I couldn't resist following up the advert which appears each month in *Amiga Shopper*, describing



Switchsoft's I/O Port showing the two 'D' connectors going to the parallel port and joystick ports. The phono connectors provide facilities for an assortment of applications

Switchsoft's I/O port. Andrew McOwan who owns Switchsoft sent me the full Switchsoft port and accessories to present control in what is a well constructed, and fiercely priced piece of kit.

HEALTH WARNING!!

Now before we get into the ballpark, a major health warning! Of the various ports available to you on the Amiga, all carry assorted voltages, signals and data. Unless you are confident about what you are doing, stay clear of dabbling with the old soldering iron and 'D' connector,

otherwise your Amiga could suddenly become very poorly and require major surgery.

ASSUME CONTROL

Looking at the Switchsoft I/O port we notice lots of assorted sockets and two ribbon leads culminating in a parallel port 'D' socket and a joystick 'D' socket. The Amiga must be switched off before connecting.

Once re-powered, a red LED tells us the port is receiving the five volts of power required. There are 15 phono (RCA) female sockets and two red power sockets supplying five volts. Eight of the phono sockets (coloured black) come from the parallel port, and these are bi-directional, so each can be configured as an input or output port.

Five of the

comprehensive tool-kit. Control routines are supplied for Amiga Basic, GFA, Hisoft, and AMOS, and the subprograms can easily be incorporated into your own programs, whichever source code you use. A rather neat inclusion is a burglar alarm program, written in Amiga Basic which incorporates speech.

One of the kits supplied from Switchsoft is a sensor and control kit. This contains four LEDs, a relay module and battery pack, a reed switch and magnet, a light bulb, a tilt sensor and a push switch. Each forms the basis of a simple control experiment, and can be operated from the toolbox screen supplied on the disk. But working directly from scratch, let's begin by plugging the phono plugs with LEDs into the eight bi-directional ports. Now let's begin programming.

Using POKE commands, the address to write to is BFE101 (in hex), 12574977 (in decimal). (This is a register on the CIAA chip). POKE a single byte (a number between 0 and 225). So we have POKE

12574977,225. Now turn on all 8 inputs... POKE 12574977,0 Turn off all inputs

These two lines of program are the first action to achieve success, and accordingly the LEDs go on and off. If you are using AMOS or GFA, you will be able to enter a binary number into the editor, so:



Switchsoft's relay model with the top removed to see the internal relay, resistor and transistor to provide high power switching

phono sockets (coloured red) are input ports (apart from one, details later) and these come from the joystick port. The last two phono sockets are yellow, and these are 'analogue' ports, which enable the Amiga to measure the resistance connected between the central and outer terminals. The value of the sensors' resistance should be in the range of 0 to 500K. It should be noted that these ports are not buffered, and care must be taken to ensure accurate insulation on any projects you attempt yourself.

The two red +5volts sockets provide a limited power supply for some projects, but this is only of the order of 125mAmps, so many applications will need an external power supply. There is however sufficient power to activate a relay - this can act as a switch to control other more powerful devices having their own energy source.

A disk is supplied with the I/O port containing loads of really useful basic applications as well as a

%00001001

will switch on outputs 5 and 8, and switch the others off. The '%' in front of the number tells Basic that it is a binary number. The number must be composed of 8 digits, each digit being 1 or 0 representing on or off.

Now let's try using the bi-directional ports for input, and see if we can register on the screen. To read the 8 inputs the command is the same in all versions of Basic. The easiest way of doing this is to PEEK location BFE101. The POKE command then sets the parallel port to input, the address is BFE301 so:

POKE 12575489,0
byte=255-PEEK(12574977)
POKE 12575489,225

To continuously monitor the input status and display it, we use a loop...

REPEAT
byte=BIN\$(225-PEEK(12574977))
PRINT byte
UNTIL INKEY\$<>" "

continued on page 61

JARGON BUSTING • JARGON BUSTING

I/O Port - Input Output Port. A device which enables a computer to send and receive information in assorted forms.

LED - Light Emitting Diode. An electronic component which glows when current is passed across it. (Just like the power light on your Amiga.)

Analogue - Continuous and varying, like analogue joysticks which provide degrees of change other than just off or on.

Relay - An electrically activated switch which has a coil of wire that becomes an electro-magnet on energising, causing the contacts of a big switch to come together, avoiding any physical contact.

Reed switch - A switch that is activated by a magnet approaching or leaving a reed, often used on windows as a burglar alarm sensor.

Light dependent resistor - (LDR) An electronic component whose resistance to an electric current changes according to the level of light falling on its optical sensor.

Thermistor - An electrical component whose resistance changes according to heat.



LCL's *Micro French* – the loading screen which appears in assorted formats prior to selection of each topic

continued from page 60

For inputs 9 to 13 we have the joystick port as a source. To read these inputs we need a language with a function for reading that port (eg STICK(1) in GFA). So if we connect a switch, or a shorted phono socket to each input in turn and read the port to see what values we get.

The inputs are numbered 9 10 11 12 13 (Left to Right). Reading the joystick fire button will give the status of the rightmost input (13).

in GFA PRINT STRIG(1)
in Amiga Basic PRINT STRIG(3)
in AMOS PRINT FIRE(1)

This will give a return value of -1 if the input is activated; 0 if the input is off. These functions can be treated in a program as boolean variables, or presented in a loop to monitor and print the status of the inputs on the screen. Eg (in GFA)...

```
DO
I$=STR(ABS(STRIG1))+BIN$  ↳
(STICK(1),4)
I$=MID$(I$,5,1)+MID$  ↳
(I$,4,1)+MID$(I$,3,1)  ↳
+MID$(I$,2,1)+MID$(I$,1,1)
PRINT I$
LOOP
```

The first line does all the work producing a binary string. The second reverses it so that it corresponds to the inputs as seen from the front of the port rather than the back.

SHEDDING SOME LIGHT

The temperature and light control kit comprises of, a light dependent resistor and a thermistor, each attached to two metres of cable. The software supplied with the kit produces a continuous read-out of temperature or light, expressed as a graph, which can be printed out.

I used the thermistor with an extension lead and went to various areas in my kitchen. The read-out fluctuated emphasising the range of temperatures around the room. An

immediate application for this device came to mind and started a mini project of its own... I am a Bonsai enthusiast and living in the North of England poses problems for delicate species over the winter. Monitoring of the mini-greenhouse I store them in over winter could enable a relay to trip and turn on a low wattage mains light-bulb, ensuring the on-coming frost was avoided.

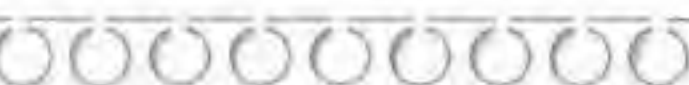
Similarly, the light dependent resistor could be used, again with a relay, to switch on a tape recorder and side lamps, should the house be empty of an evening, providing a very cheap but effective intruder deterrent.

GET GEARED UP!

The final component in the kit is a geared motor, which enables interchange of the gears to alter the ratio of the final drive, offering very low revs with high torque. Even as I sit here confronting my word processing program, my 11 year old son has his A500 linked up to the I/O port – the geared motor is slowly rotating a Lego construction, which stops and starts, bearing an uncanny resemblance to a guillotine!

NEXT MONTH

Next month we will be moving further into the realms of control and looking at how we can build and send instructions to a buggy. We'll also be discovering what is involved in constructing a robot, and how we can use our Amigas to control mains



SHOPPING LIST

Input/Output port..... £27.95
Sensor and control kit..... £27.95
Temperature and light kit.... £11.95
Motor with gear box..... £11.10
Double pole relay £14.70

Available from: Switchsoft,
Dept X1, 26 Ridgeway,
Darlington, Co Durham
☎ 0325 464423

MICRO FRENCH

National Curriculum dictates that all students will have begun to learn French by the age of 11, and by the age of 14 and 16, they will be tested on their knowledge of the language. Most language-based learning software is pretty dull, and fails to take advantage of the sophisticated options available on the Amiga. Examples I have looked at are databases of questions which fail to address using practical language, understanding everyday features, such as road signs, newspapers, conversations in shops, and finding your way around.

Having lived in France for a long period I was interested to see how LCL had gone about trying to change the style of learning, and I must confess to being impressed. In addition to the disk with the program, is an audio cassette linking in with the program, giving the opportunity to develop pronunciation. Christopher Randall's book, *GCSE French Topics*

is also included, and this extra bonus is a really useful aid to developing further skills.

24 WAYS TO IMPROVE YOUR FRENCH

Micro French presents a loading screen, then moves on to a menu, offering any one of the 24 programs which make up the course.

Pronunciation is one of the programs, and you will need a tape recorder to play the cassette. Cues on the tape present opportunities for pronunciation practice – the words or phrases are then displayed on the screen.

Colours presents assorted shapes, and you must key in the French word. *Articles* poses gender questions to help develop an understanding of 'le' and 'la' definition. The broad range of 24 assorted topics covers every aspect of French language learning. Two particular favourites I liked were the *Newspaper* topic and *Role Play*.

In the newspaper topic, passages are presented for reading. Questions are posed to see if real understanding has taken place. The items cover all sorts of topics, and the concentration required is quite high, in order to respond accurately to the questions.

In *Role Play* the culmination of common phrases is tested, as you



into the comprehension topic, and concentration is required to digest the information in the passage to ensure correct replies

are put in a situation where you are told to respond to prompts according to a sequence of events. I thought this was the jewel of the package.

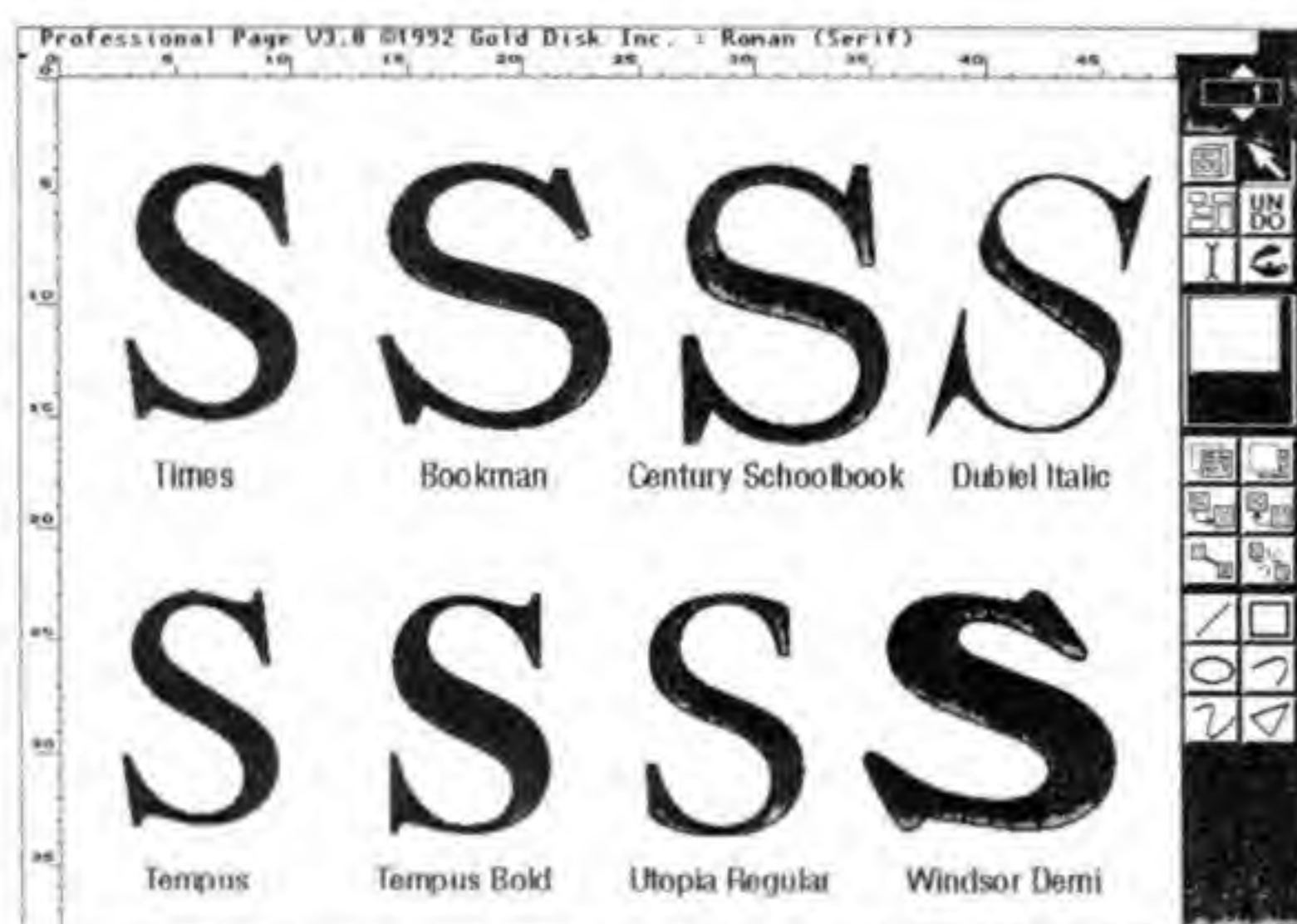
There are quite sophisticated error handling facilities throughout the package. More than once I noticed that information, which I had deliberately entered wrongly, was tested again soon after to see if I had learned from my errors. There is even a facility to enter text with accents, as well as a translate option which often helps when knowing the English word improves understanding, not to mention the usual music which accompanies correct and incorrect responses. LCL has put a great deal of thought into changing the way that French tuition can be presented.

The overall structure of *Micro French* is excellent, and the path through the topics is logical and sequential. Definitely a first class package. LCL is to be commended for producing an innovative and enjoyable teaching aid.

Micro French costs £24 plus P&P and is available from LCL.
☎ 0491 579345



The Black Letter group of typefaces is often mistakenly referred to as Olde Englishe, and even more often and mistakenly referred to as Gothic. If it looks like it belongs on a wedding invitation or a Nazi poster, you can probably safely assume that it's Black Letter. OK?



Roman, or Serif, is the most widely used typeface because of its elegance and class. Look at the thicknesses of the strokes, the rate at which they go from thick to thinner, and at the serifs at the end of the main strokes; these are the three main ways of distinguishing between the different Roman typefaces

Jeff Walker describes the terms and techniques of the art of typography

Reverting to *type*

In past tutorials we've learned about creating leaflets and newsletters and the like, but what we haven't done is learn the basics. In effect, we've been learning to run before we can walk.

There's nothing wrong with that; we've had a lot of fun playing around with various techniques, and hopefully a lot has sunk in, but if we want to understand the whole story, at some point we have to go back and read the opening chapters.

Or like in a film if you prefer, there are things that happen in the

middle which don't make sense unless you've seen the beginning. So remember where you came in – I'm going to rewind the tape to the start.

THREE AREAS

There are three broad areas of desktop publishing – words, pictures and design. Each area breaks down into topics, and the topics can be further divided into sub-topics, most of which overlap each other slightly, particularly in the design area.

Words, which is the area we are going to look at first, has two basic

topics – typography and style.

By 'style' I don't mean type styles like bold and italics. No, this style is all about communicating effectively and is related in many ways to what you learned/forgot (delete as applicable) in school about English language.

Not 'I before E except after C'. We're talking about how to turn writing that stinks into interesting, informative and enjoyable copy. In essence, we're talking about learning how to write.

But that comes later; before we learn how to put the words together we're going to learn about the kinds of squiggly marks that can be used to form those words. Typography it's called, which is the practice of arranging letters, numbers, punctuation and other non-alphabetic characters – collectively known as 'type' – and also the study of type.

In a nutshell, typography boils down to understanding that particular sizes and shapes of letters get some messages across better than other sizes and shapes of letters. To take a simple and extreme example, a headline printed in inch-high letters would look correct whereas a headline printed in tiny letters would look stupid.

TYPES OF TYPE

Type can be divided into groups. In each group there are various 'typefaces'. Each typeface consists of a 'type family' comprising all its different styles: plain, a thinner version called Light, a thicker version called Bold, a smaller one called Condensed, a wider one called Expanded, a slanting one called Italic, and so on. (These names aren't fixed, by the way; for instance some plain faces are called Upright or Regular, some slanting typefaces are called Oblique, some thicker typefaces are called Demi. Basically, whoever designed the typeface gets to call it what they want, although there are certain conventions).

One style and size of type is called a 'font'. So to give a complete example: Times is a type family; Times-Roman, Times-Italic, Times-Bold and Times-Bolditalic are typefaces; Times-Italic 24pt is a font, Times-Italic 10pt is another font, Times-Italic 72pt is yet another font.

The British Standards Institute defines about a dozen groups of typefaces, but the ones used in printing can be divided into roughly six kinds. The four main kinds are Black Letter (sometimes improperly called Gothic – see below), Roman

JARGON BUSTING • JARGON BUSTING

Baseline – The imaginary line on which upper and lower case letters stand.

Black Letter – Type in the Germanic style, often mistakenly referred to as Olde Englishe. (Improperly called Gothic by people who don't like it).

Body (type) – The space, measured from top to bottom, on which a letter is printed.

Body type – The type used for the main text of a document or publication.

Body copy – The main text of a document or publication.

Bold (type) – The thicker version of a particular typeface.

Book (type) – The medium version of a typeface, normally intended for continuous use (as opposed to headings and the like).

(also called Serif), Slab serif (also called Egyptian), and Sans-serif (also, properly, called Gothic).

The two less important kinds of typefaces are called Cursive, which comprises designs based on handwriting or 'script' styles, and Decorative, which is pictorial – a typeface that has flames licking around the letters, for example, or one built from planks of wood.

Black Letter isn't used much these days, except on wedding invitations and signs and stationery for Olde Englishe hotels. It's all very intricate and might look nice hanging on the wall, but it's nigh-on impossible to read. Designed by Johann Gutenberg, based on the work of German scribes, it was the first typeface set in moveable metal type.

Black Letter has never been popular outside Germany and a few other parts of Europe. The Italians despised it, I mean they thought it was the pits, which is why they called it Gothic, another word for barbarian. Italian scribes were more cultured, Rome was the seat of civilisation after all and they had an image to keep up, so they wrote in a formal and an informal style. As Roman and Italic these remain today the most widely used typefaces.

ROMAN ELEGANCE

What distinguishes Roman is the variation in thickness of different parts of the letters; it imitates the act of writing with a pen, and its 'serifs', the short lines at the end of the stroke of a letter.

Roman stone masons invented

serifs simply because after cutting letters in stone they felt they didn't look right without them. So says history. (Personally I reckon a clumsy mason's apprentice slipped at the end of a complicated curly bit and made the rest of the letters look the same to try and hide the mistake.)

Popular Roman typefaces like Baskerville, Bookman, Century Schoolbook, Garamond, Souvenir and Times are to be seen in publications worldwide for three main reasons: they are formal, they are elegant, they exude class.

They also happen to be easier to read. Scientific studies of eye movements have shown that the eye reads the top of a word first, and then works its way down until the word is recognised, which is normally way before they eye has scanned the word from top to bottom. As the difference between letters with serifs is more marked than that between letters with no serifs, recognition happens, on average, around 20 per cent faster with serif typefaces.

Clever buggers those Romans.

ENTER THE VICTORIANS

Slab serif typefaces are similar to Roman except the strokes are bolder and the serifs are thick and square.

The Victorians adored Slab serif typefaces, which they also called Egyptian after the most popular Slab serif typeface of the day, and you'll see them all over those wonderful old Victorian music hall and American Wild West 'wanted' posters. These days Slab serif typefaces are mainly used in large

sizes for headlines and the like – Lubalin-Bold is a popular one, along with the Egyptian typeface itself.

Sans-serif is letters without serifs; From the French sans for 'without'. (The origin of the word 'serif' is lost in time, but is probably from the Old German, although the Old Dutch have a stake in there too).

Sans-serif typefaces are a quite recent invention and came about because one day someone sat down

serif typefaces are forceful, brutal even, they shout out the message like an American evangelist where Roman typefaces speak it in the genteel accent of an English nobleman. For this reason Sans-serifs are used mainly for display purposes, for headlines in newspapers and magazines for example, or on posters in bright colours.

"But hang on a moment," I pretend to hear you cry, "this whole

JARGON BUSTING • JARGON BUSTING

Cap height – The height of capital letters in a particular font, measured from the baseline.

Character – An individual letter, number, punctuation mark.

Condensed – Type that is narrower than the standard face.

Copy – Text, in manuscript or on disk, that is ready for setting.

Cursive – Type that imitates a formal or informal handwritten style.

Decorative (type) – Ornate typefaces not usually used for continuous text. (Also called Display).

Display (type) – The larger sizes of type used in headings.

and realised that there was no reason for type to resemble handwriting other than tradition. So they made the strokes of the letters the same thickness throughout, removed the wiggly bits at the end of the strokes, and said stick that in your headline and smoke it.

Like Slab serifs, Sans-serifs abounded during the Victorian age, where they seemed to exemplify the coming of the machine age. Sans-

article is set in a Sans-serif typeface so this Walker person must be talking out of his wossname." Well, yes and no. The advent of desktop publishing has made it cheaper and easier to experiment with typefaces and many magazines, particularly those aimed wholly or partly at the teenage-to-twenties age group, have found that Sans-serif faces seem to be popular with readers and give the magazine a more 'where it's at' appearance. Sans-serif typefaces can be tiring to read when used for

TYPEFACES



Like any art, typography has its own terms and jargon; the most common ones are shown above. Typeface design is a skilled and subtle art, slight changes in a curve or the thickness of a line can change the entire character or personality of a letter and affect its legibility.

Typefaces are grouped into 'families' of weights and widths, usually derived from the original medium-weight design which is known variously as Regular, Roman, Book, Medium, Antique, Gothic, and a few others.

The minimum expected of a typeface would be a Medium and Bold weight, both with Italic, so four typefaces in all.

A more complete family would include Light (also called Graphic and Thin), Medium, Semi-bold (usually called Demi), Bold, Extra-bold (variously called Ultra, Black, Heavy and Extra), all with Italic (also called Kursiv or Oblique), together with Narrow (or Condensed) and Wide (or Extended or Expanded) versions of them all. To save you the bother of counting that lot up, I'll tell you that such a family would comprise no less than 30 typefaces.

On top of this we could have Swash versions, which would normally be Ultra and Ultra-Italic



The complete Garamond type family; you may find it difficult to track down computer versions of the Ultra face

faces with additional flourishes (ie bigger/extra wiggly bits), and Contour versions, which would normally be the Medium face with a thin outline running around the contours of the characters.

The advantage of such large ranges is so that typefaces can be used together with complete confidence in order that they will not only correspond exactly in proportion, but that they will work together harmoniously on the same page.

something that requires a lot of non-stop text, like a book, but are perfectly acceptable for short pieces like magazine articles.

Cursive typefaces are of limited use and are often difficult to recognise as being Cursive. Copperplate, for example, is a Cursive typeface, but,

having read this far, if I showed you something set in Copperplate you'd swear it was Serif.

Probably the best known Cursive typeface is Zapf Chancery, and this looks more like a Cursive typeface should – like handwritten text, be it neat, formal, scrawled,

scribbled or whatever. Cursive typefaces are no use for body copy (the main body of text in a publication) because it is very tiring to read even in short passages, they're no use for headlines because they don't have enough weight, or 'oomph' if you like... As I said, Cursive typefaces are of limited use. But there are plenty of them around if you need them.

So, having talked about Black Letter, Roman, Slab serif, Sans-serif and Cursive, we're left with Decorative.

PUBLISH AND BE...

Decorative is the category every other kind of typeface gets put into. It's the filing cabinet labelled Misc, the 'bar' in the betting, the drawer where the odd socks get thrown.

Decorative typefaces are more



Slab serif, or Egyptian as it is often called, was a popular poster typeface with Victorians on both sides of the pond

like illustrations than type, and they include letters made from things like dominoes, trees, flowers, flames, stars and stripes, explosion... anything you fancy. They play a useful part in desktop publishing, used exclusively for less formal purposes such as posters and fancy headings, initial capital letters (many Decorative typefaces are composed of upper case letters only), or even

for pure illustration. Their job is manifold – to catch and please the eye, to make the reader look a little closer, to strike home a message, to create an image or atmosphere.

They sprung from the Victorian era, probably as a reaction to the machine age, inspired by the lines and shapes of Art Nouveau and Art Deco, and they were all the rage until the 1920s when sobriety returned. Until the 1960s, that is, when the designers of the underground press broke every rule in the publishing book and rubbed the establishment up the wrong way with weird and wonderful psychedelic effects.

Society branded these contemporary designers subversives, a few were even tried and found

more and more, and forced publishers to meet tighter and tighter deadlines. Time became money.

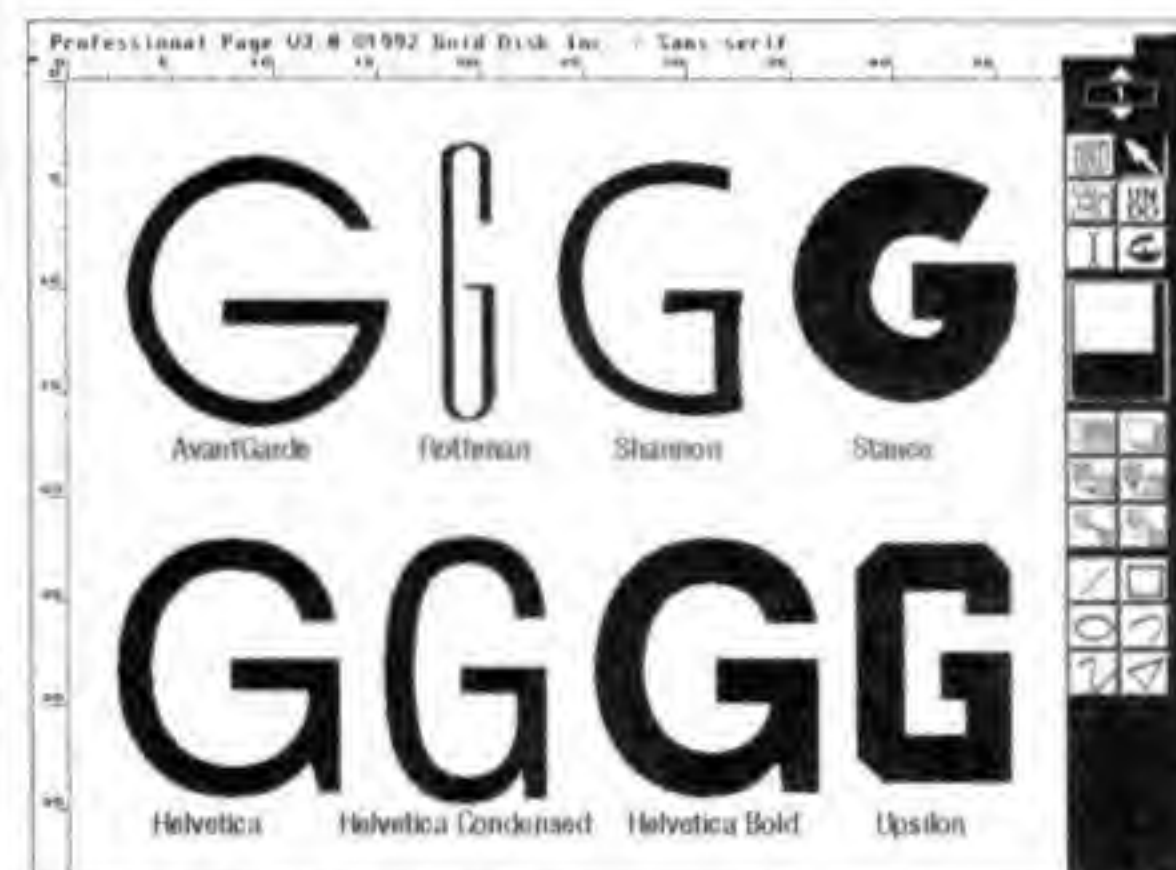
Printing used to be closer to other arts like painting and sculpture, and 'one man band' printers would regularly burn the midnight oil slaving over unusual typefaces and fancy borders. With the advent of DTP the computer has brought back the individual approach. Or, at least, provided the potential. We're all such stick-in-the-mud fuddy-duddys that it could be decades before we see posters as exuberant as those the Victorians gave us, or publications as daring and innovative as the 1960s underground Oz magazine.

MEASURE TO MEASURE

Typography has its

own standard units of measurement: points and picas (which is pronounced 'pikers' as in 'bikers', not 'peekers' as in 'seekers').

There are 72 points to the inch, and 6 picas to the inch (and therefore 12 points to each pica). In



Sans-serif typeface (which is properly called Gothic) was designed for display purposes in large sizes, but now many 'where it's at' publications (including this one) use it for body copy

guilty of plotting to debauch and corrupt the morals of young persons. Today, thank heavens, they are recognised for what they were – stoned most of time, but extraordinarily innovative between times.

A similar thing is happening today over the graffiti sprayed on city walls. It started in the late 1970s as part of the punk scene, and in truth most of that early punk graffiti was quite ugly, but then so is Black Letter and we stick that on wedding invites!

These days there's a lot more to graffiti than meets the eye. There's science and rules behind those apparently random squiggles, and graffiti has almost reached the point where it can be classed as its own sub-group of the Decorative typefaces. Typography or teenage vandalism? Only time will tell.

The British have become frightened of decoration, 'restraint' is the keyword for today's professional typographer. The consensus is that printing should be invisible, just a pane of glass between the reader and the words. This certainly came about as a result of the mechanisation of printing, which made it cheaper and faster to print

conventional printing these figures are approximate, in desktop publishing they are exact.

Printers have a host of terms for type set in certain point sizes. For instance they call 12 point type Pica, 5.5 point type Agate, 5.25 point type Ruby... I shan't go on because none of these terms (apart from pica) matter and will only help to confuse you. (I know they confuse me.) You may well come across the odd printer who still speaks in this jargon, but it's a lot easier not to bother with it.

All you really need to know is that the height of a letter is measured in points, and the width at which a line of type is set (the 'measure') is measured in picas.

There are a few measurements that are not absolute, they change depending on the point size of the type. The only ones you need to know about are ens, ems and thins.

An en is equal to the space filled by a letter 'n' of a particular font. An em is equal to the space filled by a letter 'm', which is a square (as wide as it is high). An em is twice as big as an en. In 12 point type an em will be 12 points and an en will be 6 points; in 9 point type an em will be 9 points and an en will be 4.5 points. In conventional printing these measurements are most often used as the basis for indenting lines.

A thin is equal to the space filled

JARGON BUSTING • JARGON BUSTING

Descender – The part of a letter that comes below the baseline in lower case letters like q p q y.

Desktop publishing – A means of publishing in which all stages from writing to typesetting are done by a computer and specialised software.

Em – The square of the body of a type. (Sometimes called a Mutton).

En – Half the square of the body of a type. (Sometimes called a Nut.)

Font – A particular typeface printed in a particular size and style. (Note: a font is not the same thing as a typeface).

Gothic – Properly used to describe Sans-serif typefaces, but also applied to Germanic or Olde Englishe which is properly called Black Letter.

Indent – Setting that is less than the full column width; not just the space inserted at the beginning of a line, but also any space inserted at the end of the line (eg left and right margins for text in panels).

Italic (type) – The sloping-to-the-right version of a particular typeface. (Also called Kursiv or Oblique).

Lower case – The small characters in a font like a b c d.

Measure – The width of a column of text, normally specified in picas.

Page depth – The length of the text area on the page (from top to bottom).

Pica – A unit of typographical measurement, 12 points = 1 pica.

Point – The basic unit of typographical measurement. In desktop publishing, 72 points equals exactly one inch.

by a full stop and is used (in conventional printing) for spacing letters.

You may be wondering if there is any sense in DTP imitating conventional printing with the points and picas measurements. Why not scrap it and use inches or centimetres?

The answer is because type sizes are measured in points and it's easier to relate point sizes and line spacing in points to column lengths measured in picas or points.

For example, you can quickly calculate how many lines of type in a certain point size

with a certain amount of line spacing will fit into a column of a given size in picas. Say we are setting type in 8 point with 2 points of spacing between each line. So each line, including the spacing, is 10 points. The shorthand way of writing down '8 point type with 2 points line

spacing' is 8/10pt - which translates to 'the type is 8pt / a line of type including the line spacing will occupy 10pt'. Remember this, I'll be using it again in a minute.

Now let's say our column height is 60 picas. Convert 60 picas into points (60 times 12), which is 720 points. So how many 10 point lines will fill the column? Easy, isn't it? Divide 10 points into 720 points and we get 72 lines of type.

Understanding this simple calculation helps you to line up columns of type accurately. Say you have one 60 pica column of 8/10pt type starting at pica 0 (the top of the page), and another column next to it starting at pica 12 (two inches down from the top of the page). The space above this second column has been reserved for an illustration.

But when you flow the text from the first column into the second, the lines of type don't line up, the text in the right-hand column looks out of step. You need to alter the top position of the box slightly to put things right. But by how much?

You could do it by eye, but what you see on the screen is limited by the screen's resolution and isn't minutely accurate. Many's the time I've lined something up on-screen only to have it a point or two out of place on the printout.

The calculation is quick and uncomplicated. Your right-hand box is currently at pica 12, which in points is 144 (12 times 12). Divide that by the vertical space occupied

by each line of type, which in our case is 10, and we get 14 (lines of type) plus a bit left over. What we're after is that remainder, which is 4 points. That is how far downwards you have to adjust the top position of your box by to get the lines of type in the left-hand and right-hand columns to line up with each other. Or you could move it up by 6 points to achieve the same thing, a figure arrived at by subtracting the remainder from the type-plus-spacing size.

It's well worth making the effort of getting used to this points and



Many company logos are set in Cursive faces. Once you've seen a distinctive Cursive face you tend to associate it with the company responsible for publishing the document (product, letterhead etc)

picas system, you'll find it much less painful than getting used to centimetres after inches or pounds and pence after LSD. (For younger readers, that is not a reference to an illegal substance, it's what we used to call our old pounds, shillings and pence money system. The pound sign looks like an 'L', and the 'S' was for shillings and the 'D' stood for... erm... Don't know).

NO RULES

There are no rules in typography, rather 'guidelines to bear in mind' if you want your publication to appear professional. By that I mean that there are guidelines to adhere to if you want your typography to be the 'pane of glass' between the reader and the words.

Which is a fancy way of saying 'easy to read and understand'.

1. Never use more than three fonts on a page or spread. Remember that a font is a typeface in a particular size and style. So the same typeface on the page in three different sizes constitutes three fonts. Too many fonts on a page are confusing.

2. Reserve the use of unusual and decorative typefaces to headings. Unusual typefaces need to be used sparingly or they stop being unusual. A large slab of text set in a deco-

native typeface may be unreadable.

3. Create an overall style for any particular publication. There should be some logic behind your selection of types. You could choose 60 points for all your main headings, 24 points

appearing amateurish. Joe Public has got used to seeing his reading material printed in a certain way, and if you deviate too far from the norm it'll be put down to poor typography, not innovation. If you want to be



When you say the word 'fonts' this is the sort of picture people think of, but the Decorative or Display group of fonts need to be used with care

for sub-headings, 10 points for the main body copy, 8 points for captions, 6 points for page numbers, and so on and so forth. Stick to this style for the whole publication.

If you don't follow these guidelines you run the risk of

innovative you need to know how to craft words that explode in readers' minds and how to design page layouts that make eyes glaze over. We'll do those another month. In the meantime, get down to the library and spend the day studying every

magazine and newspaper on the shelves. Take a pad and pencil and see if you can relate what you've learned here to anything you see on the pages.

When you start recognising the techniques, can look at a publication and say "they did that because...", and you start asking "why did they do that?", you're on the road to becoming a professional desktop publisher.

JARGON BUSTING • JARGON BUSTING

Roman (type) - The upright version of a particular typeface. (Also called Regular, Book or Medium, and sometimes Antique or Gothic).

Sans-serif - A typeface without serifs. (Also called Grotesque).

Semi-bold - A weight of typeface that is heavier than Medium but not as heavy as Bold. (Also called Demi).

Serif - The small stroke at the end of the main stroke of a letter.

Set - To assemble letters into words and lines. (Can also mean the width of an individual character across the body).

Slab serif - A typeface with bold strokes and thick, square serifs. (Egyptian).

Spread - A pair of facing pages. (Also called a double-page spread, commonly abbreviated to DPS).

Swash - Characters with additional flourishes.

Type - Letters, numbers, punctuation and other non-alphabetic characters.

Typeface - A particular style of type.

Type family - A series of typefaces in different weights and widths, but with the same design characteristics.

Type style - Type in a specific style such as bold, italic, condensed etc

Typeset - Text printed in a recognisable typeface.

Ultra - An exaggerated heavy version of a particular typeface. (Also called Black, Heavy and Extra.)

Upper case - Capital letters.

Wide (type) - The wide version of a particular typeface. (Also called Extended or Expanded).

x-height - The height of lower case letters in a particular font, measured from the baseline.

FIRST CHOICE (LEEDS) TEL 0532 319444

COMPUTER CENTRE

FAX: 0532 319191

OPEN 7 DAYS A WEEK
FREE DELIVERY ON ALL GOODS!!

OPEN MON - SAT 9.30AM-5.30PM
SUNDAY OPENING 11.00AM-3.00PM
THURSDAY NIGHT LATE 9.30AM-7.30PM

AUTHORISED DEALERS FOR STAR,
CITIZEN, COMMODORE, ACORN,
ROMBO, PHOENIX & SUPRA



SUPRA MODEMS

The *New super fast* Supra-Fax Modem V.32 bis (14400 baud !!!)

Allows you to send and receive fax messages. This new modem from Supra has full 14400 baud capability. Spec includes V.32bis, V.32, V.22bis, V.22, V.21, MNP4-5, MNP10 (for cell phone comms), V.42, V.42bis, Class 1 & 2 commands, 9600/14400 Group 3 Fax. Includes free comms software and modem cable

only £259.99!!!

Supra Fax Plus (up to 9600 BPS)

Now with the ability to send faxes! Even faster than the standard 2400 modem from Supra with auto dial and auto receive. 9600 bps Hayes compatible. V.22, V.42 Bis, MNP 5 and auto adjusting facility to maximise transmission speeds. Spec includes free modem cable and comms software!!

only £149.99

NEW!!

Supra 2400

Get on line with this incredible value fast modem from Supra with auto dial and auto receive. 2400 baud Hayes compatible. V.22 BIS. Includes modem cable and comms software!!

only £79.99

Supra 2400zi

Internal version for the 1500/2000/3000 range. Same tech spec as the Supra Fax Plus but without the Fax capability. Includes free modem cable and A-talk 3 comms software!!

only £99.99

All Supra Modems come with a 5 year warranty!!

KCS Power board

Regarded as one of the best emulators on the market. Highly recommended.

now only £179.99

1500/2000 adaptor **only £59.99**

MS-DOS 4.01.....**£15.00 extra**

New Commodore 386-20

This is a PC 386-20SX Bridgeboard running at a full 20 MHz

only £439.99

The New GVP 16 Mhz PC-286

for use with the GVP Series II HD8 + or GVP A330 hard disc drives

only £239.99

VORTEX AT Once Plus 16Mhz

Now with 16Mhz speed.....**only £214.99**

FIRST CHOICE PACK

RRP £95.00!!!

With the **FIRST CHOICE** Pack you can make sure you have every thing you need when buying an Amiga. All the essentials required for the first time buyer and at a bargain price!!

- Comprises:**
- Top quality microswitched Powerplay Cruiser joystick
 - Mouse Mat
 - Dust Cover
 - 10 high quality Blank Disks
 - Plus £70.00 of software!!
- only £29.99**

THE AMIGA A500 PLUS CARTOON CLASSICS

The A500 has more serious capability than the A600 with its greater expandability and a large selection of high quality third party add-ons

Complete with:

- One Mb of chip RAM expandable to 10 Mb of RAM in total
- The new Kickstart 2.04
- Workbench 2.04
- Built in battery backed real time clock
- New improved user friendly manuals

This pack also comes with Lemmings, (the only game ever to get a 100% rating!) The Simpsons, Captain Planet and Deluxe Paint 3 the incredible paint and animation package plus mouse and modulator

only £339.99!! or £374.99 for 2Mb version

The AMIGA 2000 Plus Base pack

now complete with the latest 2.04 Kickstart chip and Workbench 2.04 !!
The 2000 Base pack is the ideal upgrade machine for those wanting to upgrade from their present Amiga 500

only £529.99

Amiga 1500 Plus Business & Entertainment Software pack

as above but with Deluxe Paint 3, Platinum Works (integrated business package), Home Accounts, Puznic, Elf, Toki plus the latest Amiga Format Tips book and joystick.

now only £549.99

NEW!! AMIGA 500 & 600 *Deluxe*

Upgrade your A500 Plus or A600 with our own Phoenix ROM shaver and 1.3 chip making incompatibility problems a thing of the past! Complete with the Cartoon Classics software pack.

A500 Deluxe only £414.99 or £449.99 for 2 Mb RAM

A600 Deluxe only £459.99 or £507.99 for 2 Mb RAM

A600HD Deluxe only £659.99 or £704.99 for 3 Mb RAM

THE AMIGA 1500/2000 PLUS *Deluxe* series

incorporating our own Phoenix ROM shaver and 1.3 Kickstart ROM chip enabling you to switch between the old and new operating systems

only £559.99

The *New* AMIGA A600

Commodore's new games machine. Can be used as a computer with its built in keyboard. Compact in size the A600 will take "Smart Cards". Comes with 12 month on site warranty, workbench 2.05, DPaint III and game. The best Amiga yet! We can't wait to see what those clever guys at Commodore do next!!

now only £359.99

The AMIGA A600HD

with a built in 20 meg hard disk for the serious games player. We shall be offering larger hard drive upgrades for the A600. Please ring for details and prices. Game and DPaint III not included.

now only £459.99

CDTV

Complete with Hutchinsons Encyclopedia, Lemmings and Welcome CD disk, CDTV is a powerful media for both entertainment and education. Capable of handling up to 540 Mb of data, whole encyclopedias can be stored on just one compact disc. The CDTV is also a high quality audio CD player. We also stock a large range of CDTV software all at discount prices

only £399.99 UK Spec.

CD Rom Amiga A500

The add-on that every one is still waiting for!! You never know, it might be out when you read this. We asked the big C but they couldn't tell us. Turns your Amiga into a CDTV

EPOA FOR BEST PRICES

New CDTV Trackerball

complete with 2 joystick ports, this is a must for CDTV owners

only £74.99

New CDTV keyboard

transforms your CDTV into an Amiga A500 so you can use it as a standard Amiga.

only £49.99

ACCESSORIES

Continuing our pursuit of excellence (and why not!!), we are proud to offer our new range of Phoenix peripherals:

Pro-Midi 2 Interface featuring midi in/out/thru, and 2 switchable midi out/thru sockets.....**only £24.99**

Mouse/joystick switcher (put joystick and mouse into one port).....**only £13.99**

Computer Video Scart Switch.....**only £19.99**

2 way Parallel port shaver box with cable.....**only £17.99**

Amiga Sound Enhancer Plus by Omega Projects. Hear the Amiga's sound like you've never heard it before!.....**only £36.99**

QUALITY MOUSE MATS.....**£3.99**

25 CAPACITY DISK BOX.....**£3.99**

40 CAP LOCKABLE DISK BOX.....**£4.99**

100 CAP LOCKABLE DISK BOX.....**£6.99**

90 CAP STACKABLE BAMB BOX.....**£6.99**

150 CAP STACKABLE POSSO BOX.....**£16.99**

AMIGA A500 DUST COVER.....**£3.99**

AMIGA 600 COVER.....**£2.99**

14" MONITOR DUSTCOVER.....**£6.99**

12" MONITOR DUSTCOVER.....**£3.99**

AMIGA TO SCART CABLES.....**£6.99**

STD 1.8 METRE AMIGA PRINTER LEAD.....**£4.99**

MODEM AND NULL MODEM CABLES.....**£9.99**

2 WAY Parallel port shaver.....**£17.99**

NEW!!

PRINTERS

All our printers are UK spec

Star LC20.....£139.99

180 cps draft, 45 cps NLQ, quiet mode and multi fonts, push button operation.

Star LC200 colour.....£199.99

9 pin colour, 8 fonts, 225 cps draft, 45 cps NLQ, A4 landscape printing

Star LC24-20.....£199.99

24 pin quality, 210 cps draft, 60 cps LQ, 16K buffer expandable to 48K, 10 fonts and LCD front display.

Star LC24-200 mono.....£229.99

24 pin, 222 cps draft, 67 cps LQ, 10 fonts, A4 landscape, 7k buffer expandable to 39K

All our printers inc ribbons and free std printer cable. All Citizen printers come with a 2 year guarantee. All printers have a full UK specification.

Star LC24-200 colour.....£289.99

Colour version with 30K buffer expandable to 62K

Star XB24-200 colour.....£379.99

Professional quality with On-site maintenance, very quiet.

Star SJ48 Bubble jet.....£229.99

Laser quality, ultra quiet, Epson compatible, portable in size

Star LC20 Autosheet feeder.....£59.99

Star LC200 Autosheet feeder.....£62.99

Star LC24-20 Autosheet feeder.....£64.99

Star LC24-200 Autosheet feeder.....£64.99

Star SJ48 Autosheet feeder.....£52.99

Star **CITIZEN** **Canon** **hp** **HEWLETT PACKARD**

NEW LOW PRICES!! **Star Swift 9 Colour.....£183.99**

Excellent value 9 pin colour. Highly recommended

Citizen Swift 24e Colour.....£269.99

Probably one of the best 24 pin colour budget printers

Citizen 224 Colour.....£224.99

cut down version of the 24e. less fonts but the same output. Excellent colour output

Citizen Project inkjet.....£379.99

Semi auto sheet feeder.....£29.99

Automatic Sheet feeder.....£79.99

Canon BJ10ex.....£234.99

Laser quality output. Larger buffer than the StarSJ48

Canon/Star bubblejet cartridges.....£17.99

Canon BJ20.....£309.99

Built in auto sheet feeder and extra facilities than BJ10

Canon BJ300.....£379.99

Desktop bubble jet with laser quality

Canon BJ330.....£519.99

Wide carriage version of the BJ300

BJ10ex Autosheetfeeder.....£52.99

Hewlett Packard Printers

HP500 mono.....£359.99

HP 500 Colour.....£569.99

HP500 mono cartridges.....£14.99

All HP printers come with a 3 year warranty

MONITORS

All our monitors are UK spec

Commodore 1085 SDI Stereo Colour monitor

features 51 dot pitch resolution. Amiga cable included. Tilt and swivel stand only £11.99 when purchased with this monitor. Cover for monitor only £5.99

only £219.99 UK Spec.

All monitors come complete with a free Amiga lead

Philips CM8833 MK2 stereo colour monitor

Colour stereo monitor, 600*285 line resolution, green screen facility, one years on site maintenance, cable for Amiga included. Tilt and swivel stand only £11.99 when purchased with monitor. Cover only £5.99

only £209.99 UK Spec.
with F19 Flight Simulator

WARNING: Before you purchase a monitor make sure it has a full UK specification. You might be buying what you think is a similar monitor at a lower price but it is likely to be a "GREY" import. These monitors do not comply with British safety standards and are not covered by an official warranty

Goldstar remote control TV/monitor

superior to a standard TV set with full remote control

now only £179.99

Commodore 1960 multisync

only £436.99

Philips Brilliance SVGA Colour monitor with *overscan* facility

The Brilliance monitor has a high quality Super VGA resolution ideal for making your AMIGA into a professional system. Includes overscan facility, 28 dot pitch and tilt/swivel stand. Monitor cover only £5.99 if purchased at the same time. 12 months on site maintenance.

1500 VERSION £399.99

with Flicker Free Video card

A500 VERSION £499.99

NEW!!

VIDI AMIGA 12

Replacing the famous Complete Colour Solution, this new package is even better value!!!

The ultimate low cost colour digitiser. No filters or RGB splitter required. Colour images can be captured in less than a second, mono images are grabbed in real time. Fully compatible with any video source.

Includes multitasking software, cut & paste with masking, multiframe store with animated playback, composite or s-video input, 4096 HAM support and many more advanced features.

only £79.99

We recommend all ROMBO products

TAKE 2

This is latest animation package for the Amiga from Rombo. Features include load and save from D. Paint animations and IFF files. Supports HAM graphics.

only £44.99

MEGAMIX MASTER

This is a low cost 8 bit, high spec. sampler that plugs into your printer port. Special effects include echo that can be added in real time, fully multitasking and easy to use.

only £29.99

DISK DRIVES

LIMITED OFFER

New Roclite 3.5"

The new super slim Roclite has recently received the best review for disk drives in Amiga Format

only £57.99

Cumana 3.5"

1 meg external drive. The best name in disk drives now at a super low price. Still the most reliable.

now only £53.99

AMIGA A590 20 Mb HD only £199.99!!

GVP HARD DRIVES AND ACCELERATORS

AMIGA A500 HARD DRIVES

GVP Series II HD8+ 52Mb

only £345.99

GVP Series II HD8+ 105Mb

only £449.99

GVP Series II HD8+ 240Mb

only £734.99

A500 GVP Combo Accelerators

A530 Combi 40MHz/52Mb Hard Drive

only £699.99

A530 Combi 40MHz/120Mb Hard Drive

only £849.99

A530 Combi 40MHz/240Mb Hard Drive

only £1039.99

68882 Co-Processor for A530

only £234.99

GVP memory RAM

8mb RAM card AMIGA 1500/2000 with 2mb

only £149.99

32 bit 60ns 1Mb SIMM for Accelerator

only £64.99

32 bit 60ns 4Mb SIMM for Accelerator

only £179.99

1500/2000 Hard Drives

Impact Series II HC8+ Control card

only £134.99

Impact Series II HC8+ with 52Mb Hard Drive

only £274.99

Impact Series II HC8+ with 120Mb Hard Drive

only £419.99

Impact Series II HC8+ with 240Mb Hard Drive

only £639.99

Impact Series II HC8+ with 420Mb Hard Drive

only £1169.99

1500/2000 Accelerators

G-Force 030-25MHz with 1Mb 32 bit RAM

only £549.99

G-Force 030-40MHz with 4Mb 32 bit RAM

only £899.99

G-Force 030-50MHz with 4Mb 32 bit RAM

only £1269.99

G-Force 040-28MHz with 2Mb 32 bit RAM

only £1699.99

All GVP products come with a full 2 year warranty

FINAL COPY new version 1.3!!

Now faster and easier to use, this superb word publisher from the writers of PenPal. With built in outline fonts for top quality output, full graphics import capability (IFF and HAM). Features include thesaurus, spelling checker and detector. Insert date, time, and page number, scale graphics to any size, crop graphics, multiple columns layout, magnified and reduced page view, and much more.

Highly Recommended now only £47.99

or £99.99 with Cumana 3.5" external drive

AMIGA RELEASE 2 UPGRADE KIT

Complete with: Kickstart 2.04 CHIP, Workbench 2.04, Install, Fonts and Extras disks/full Commodore manual set

only £79.99

PLATINUM WORKS PLUS HOME ACCOUNTS !!

As recommended by Commodore we believe this to be one of the best all round integrated business packages on the Amiga. It comes with Platinum Scribble w/p, spell checker, thesaurus, Analyse (a Lotus 123 compatible spreadsheet with 3D graphics), a database, sideways printing utility and communications software plus the best selling Digi Home Accounts

only £44.99!!

PAGESTREAM 2.2

The latest version of this powerful DTP package that we recommend. Better than a lot of DTP packages on a PC and better than most on a Mac

£89.99

NEW!! LOW PRICE

INTERSPREAD

This new spreadsheet is highly recommended at a bargain price. Features include graphics presentation, and advanced macros

only £24.99

QUARTERBACK V3

New, completely re-written version of this Fast and Famous hard disk backup utility. Supports up to 4 disk drives, variable compression options and full Macro and AREXX support. The Best!

only £39.99

Quarterback Tools.....only £44.99

Music X JUNIOR

This excellent midi music package crazy price!! RRP £49.99

only £12.99

NEW!!

Aegis Sonic.....£39.99

Art Department Pro 2.1.....only £99.99

Amiga Logo programming for kids.....£19.99

Amiga Vision.....£39.99

Amos Creator.....£34.99

Amos Compiler.....£22.99

Amos 3D.....£27.99

Audio Engineer.....£169.99

Audio Master version 4.....£39.99

Broadcast Titrer.....only £149.99

CrossDos.....£19.99

Deluxe Music Construction Set.....£54.99

Deluxe Paint 2.....now only £4.99

Deluxe Paint 3.....now only £12.99

Deluxe Paint 4.....now only £57.99

DEVPAC 3.....£57.99

Deluxe Print 2.....£9.99

Distant Suns new version!!.....£34.99

Easy AMOS.....£24.99

EXPERT DRAW.....ONLY £49.99

EXPERT 4D JR.....ONLY £37.99

Flexidump printer utility.....£31.99

GB Route Planner.....£29.99

GFA BASIC 3.5 Interpreter.....ONLY £19.99

HiSoft Basic.....£54.99

Home Accounts 2.....£37.99

Imagine V2.....£189.99

Lattice C Version 5.7.....£149.99

Opus Directory.....£29.99

Pagesetter 2 DTP.....£42.99

Piximate.....£39.99

Platinum Scribble w/p.....now only £29.99

Pro Page professional V3 DTP.....£149.99

Protect 4.3 W/P.....now only £39.99

Pro Video Plus.....£139.99

Quarterback Tools.....only £44.99

Sequencer One.....£74.99

Superbase Personal.....£19.99

Scale 500.....£79.99

TURBO PRINT.....£49.99

Vista.....£29.99

Vista Pro 2 (2 Mb required).....£69.99

Walt Disney Animator.....£64.99

Wordworth 1.1 word publisher.....£72.99

Xcopy Pro inc. hardware.....£33.99

DIGI-VIEW GOLD MEDIA SYSTEM

The new complete graphics creation presentation package for your Amiga. Comes complete with the famous Digi-View Gold, Digi-Paint and Elan Performer

now only £119.99

NEW!! KINDWORDS V3

If you wanted to buy Wordworth but thought it too expensive buy this one. Very similar but without Speech synthesis and produced by Digi

only £37.99

PENPAL 1.4

This best selling word publisher incorporates many features found only in a desk top publisher. Also includes an easy to use database

only £53.99

DISKS

All our 3.5" disks are GUARANTEED FOR A LIFETIME and are CERTIFIED 100% ERROR FREE double sided, double density disks are of the highest quality in magnetic media and are extensively used by duplicating houses

QTY	3.5" Bulk	OR	SONY BRANDED
10	£4.99		£6.99
30	£14.29		£17.99
50	£21.99		£28.99
100	£39.99		£54.99
200	£72.99		£99.99
500	£169.99		£POA...
1000	£339.99		£POA...

Sony Branded disks come complete with labels
Disk Labels.....500.....now only £6.99
Disk Labels.....1000.....now only £9.99

NEW!! A600 RAM

PHOENIX AMIGA A500 PLUS & A600 RAM MODULES

Built for First Choice these high quality RAM modules will take your A500 Plus or the new A600 (inc built in real time clock) up to 2 Mb of chip RAM without invalidating your warranty.

	A500P	A600
Unpopulated.....	only £16.99	£29.99
Populated to 512K.....	only £29.99	£39.99
Populated to 1 Mb.....	only £39.99	£49.99

NEW!! A600 ROM SHARER

PHOENIX ROM SHARERS

Because some older software will not run on the new 2.04 operating system First Choice launched the high quality Phoenix ROM sharer. Recognised as being the best on the market, this ROM sharer features a flexible ribbon connection so that it can be positioned anywhere within your A500 Plus or A600. Keyboard switchable sharer now available! All our Phoenix products come complete with a full 2 year replacement warranty

now only £19.99 or £27.99 for keyboard switchable version

Kickstart 1.3 only £27.99 or Kickstart 2.04 only £33.99

SUPRA RAM

The ultimate Amiga A500 expansion. Take your A500 up to 9 Mb (10 Mb with the A500 Plus). Fits onto the side expansion port. Auto configures with no software patching.

Please note that when 256*4 ZIPS are used, the Supra RAM can only be populated to a maximum of 2 Mb. If you use this configuration and want to further increase your capacity you must replace the 256*4 ZIPS with 1 Mb by 4 ZIPS.

8Mb pop to 1Mb.....	£94.99
8Mb pop to 2 Mb using 256*4zips.....	£119.99
8Mb pop to 2 Mb using 1Mb*4 zips.....	£139.99
8Mb pop to 4 Mb.....	£194.99
8Mb pop to 8 Mb.....	£299.99
8Mb pop to 2 Mb for 2000/1500 range.....	£149.99

512K RAM EXPANSION

Top quality RAM expansions for the A500 complete with battery backed clock and on/off switch. This RAM expansion will not in any way invalidate your Amiga warranty!!

now only £24.99

MAIL ORDER? WHY FIRST CHOICE?

Order by telephone quoting your credit card number. If paying by cheque please make payable to FIRST CHOICE. In any correspondence please quote a contact phone number and post code. Allow 5 working days for cheque clearance

Mail order Hotline 6 LINES

24 HOUR MAIL ORDER SERVICE!!

0532 319444

Prices are subject to change without notice. E&OE.

- * All prices include VAT and Standard Delivery
- * All hardware/computers are genuine UK spec.
- * Free Fast Standard 4 to 7 day Delivery
- * Guaranteed 2 to 3 day Delivery only £2.00
- * Guaranteed Next Day Delivery only £4.50
- * Open seven days a week for your convenience

PLEASE ADDRESS ALL CORRESPONDENCE TO:

DEPT AS, UNIT 3, ARMLEY
PARK COURT, OFF CECIL
STREET, LEEDS, LS12 2AE

OMEGA PROJECTS

(EUROPE) LTD

OMEGA HOUSE
83 RAILWAY ROAD
LEIGH
LANCS, WN7 4AD

HARDWARE SALES ONLY	0942 682203
HARDWARE SALES ONLY	0942 682204
SOFTWARE SALES ONLY	0942 682205
QUERIES & FAX	0942 682206

ALL CHEQUES, P.O., ETC SHOULD BE MADE PAYABLE TO OMEGA PROJECTS LTD. WE ALSO TAKE ACCESS, VISA, MASTERCARD & EUROCARD

ALL PRICES INCLUDE VAT

SOUND ENHANCER

IF NOT SATISFIED WITH THIS PRODUCT SIMPLY RETURN FOR A NO QUibble REFUND. THIS IS HOW SURE WE ARE THAT YOU WILL BE MORE THAN IMPRESSED. YOU'VE GOT TO HEAR IT TO BELIEVE IT.

100% COMPATIBLE
WITH ALL SOFTWARE

PLUS
39.95

NOW WITH BASS
ENHANCEMENT

IF YOU THOUGHT THAT THE AMIGA SOUND WAS GOOD THEN YOU ARE IN FOR A REAL SHOCK. AS YOU CAN ENHANCE THE SOUND TO NEW HEIGHTS WITH THE BRAND NEW RELEASE FROM OMEGA PROJECTS: LOOK OUT FOR THE REVIEWS

KICKSWITCH ROM SWITCHER

DOES NOT REQUIRE MACHINE TO BE SWITCHED OFF TO SWAP ROMS

- | | |
|----------------------------|---------------------------------|
| 1. RIBBON CABLE MOUNTED | 24.95 (Bare) |
| 2. WORKS WITH ACCELERATORS | 44.95 (Inc 1.3 Rom) |
| 3. AUDIBLE SWITCH OVER | 49.95 (Inc 2 x Rom) |
| 4. EASY INSTALLATION | |
| 5. FULLY AUTOMATIC | Save 5.00 on last months prices |

150/250Meg SCSI TAPE STREAMER

The ULTIMATE back-up device

INTERNAL	449.95	AMIGA DOS 2.0 COMPATIBLE
EXTERNAL	549.95	

OFFICIAL UK 2.04 ROM KIT
NOW IN STOCK
79.95

CSA

ROCKET LAUNCHER

A BRAND NEW PRODUCT to enable people that own the Commodore A2630 Accelerator to increase its speed to a full 50MHz while retaining full original compatibility. So don't even think about swapping your original card for a faster one until you have seen the ROCKET LAUNCHER.

£595.00

TURBO CHARGE YOUR CBM
A2630 ACCELERATOR

AMI-BACK

The WORLD'S fastest, most reliable hard disk back-up utility available for the AMIGA. Backs up to 4 floppy drives (not 2 like the competitors) or to TAPE STREAMER without the need for additional software. Has a built-in SCHEDULER, selective back-up, or Disk Image. Guaranteed better than any other on the market!

49.95 AMIGA DOS 2.0
COMPATIBLE

GVP

IMPACT 500 HARD DRIVE
Expandable to 8 Meg ram

ADD 50.00 PER 2 Meg
IF ORDERED AT SAME
TIME AS DRIVE.

52Meg 379.95
105Meg 499.95

AMIGA A600 & A600/HD

This latest addition to the Amiga range of home computers is the ideal solution for those of you on the move, due to its size & internal TV Modulator. Comes complete with 1 meg ram, Mouse, PSU, 20 Megabyte internal Hard Drive (A600/HD).

1 YEAR ON-SITE WARRANTY FREE

A600	£379.95
A600/HD	£479.95

BARE SCSI and IDE DRIVES

Quantum	52Meg	199.95
Quantum	105Meg	329.95
Quantum	170Meg	449.95
Quantum	210Meg	639.95
Fujitsu	44 Meg	179.95
DEC	850 Meg	1299.95
SCSI Case	Inc PSU	109.95

SYQUEST REMOVEABLE HARD DRIVES
44Meg inc. cartridge 399.95
88Meg inc. cartridge 499.95

SUPRA RAM 500 RX

External memory expansion for Amiga 500 & 600 Plus. Adds up to 8 meg.

1 Meg	119.95	4 Meg	199.95
2 Meg	149.95	8 Meg	349.95

SUPRA

HARD DRIVE SYSTEMS

500XP	52MEG	349.95
500XP	105MEG	499.95

PLUS UP TO 8 MEG RAM

SUPER CARD-AMI II

THE ULTIMATE & GENUINE DISK DUPLICATOR.
FULL UK SUPPORT & UK USER GROUP SET UP

A500	34.95	A1500/2000
------	--------------	------------

CSA MEGA-MIDGET RACER

The UK's biggest selling ACCELERATOR card. For the A500/2000. Offering a modular design allowing you to buy what you can afford then expand later. Up to 38Mhz CPU + 50Mhz Co-pro + 8 Meg 32bit ram + 512K Shadow (STATIC) ram.

68030 accelerator 25, 33, 38 Mhz
Co-Processor socket for 68882 up to 50 Mhz
68000 socket on board for FALLBACK compatibility
Gives you more power than the A3000
Optional DRAM expansion up to 8Meg 32 bit ram
Fits INSIDE A500/1500/2000 easily and quickly
Creates a monster machine for progs like FALCON etc
Cuts Ray Tracing times 30x - 60x for SCULPT etc
Speeds up screen refresh and overall performance
Lowest price 68030 THAT WORKS!!!!

As the ONLY OFFICIAL DISTRIBUTORS for CSA we offer a 50% buy back policy. This means that if you upgrade you won't be stuck with anything.

25mhz EC68030	349.95
33Mhz EC68030	449.95
25Mhz MC68030	449.95
33Mhz MC68030	549.95
25MhzEC + 68882	499.95
33MhzEC + 68882	599.95
STATIC RAM (512K)	99.95
2Meg 32Bit ram	219.95
4Meg 32Bit ram	399.95
8Meg 32Bit ram	599.95
25/25 + SRAM + 2Meg	749.95
33/33 + SRAM + 2Meg	879.95

A500 Replacement Drive	55.00
A1500/2000 Internal Drives	59.95
A590 CMOS RAM Chips (512K)	19.95
1.3 ROMS	29.95
2.04 ROMS	39.95
1 Meg x 8 SIMMS (2 Meg) 80ns	79.95
4 Meg x 8 SIMMS (8 Meg) 80ns	249.95
Sound Trap 3 Sampler	29.95
Mini Midi Interface	19.95
3.5" External Drive (Cumand)	59.95
Upgrade Mouse	18.00

200 WATT PSU

COMPLETE WITH A500 POWER CABLE & OPTIONAL HARD DRIVE POWER LEAD

READY TO PLUG
IN AND GO **79.95** FAN COOLED

GVP SERIES II 68030 COMBO CARD

This affordable ACCELERATOR CARD for the A1500/2000 gives your Amiga a new outlook on processing. Complete with CO-PRO, 32 BIT RAM, and SCSI HARD DISK controller.

Allowing transfers in excess of 1.2meg/sec.

25Mhz + 1Meg 32 bit ram	599.95
40Mhz + 4meg 32 bit ram	949.95
50Mhz + 4meg 32 bit ram	1499.95

GVP IV24

24 bit professional video adaptor. Features 16 million colours on screen at once. Built in Genlock, F/Fixer, Frame buffer, Frame grabber, and Digital keyer. Comes with Caligari 3D, Scala IV24, & Macro Paint.

1699.00

NOW INCLUDES RGB SPLITTER

CSA

40/4 MAGNUM

68040 25Mhz
HIGH SPEED SERIAL PORT
HIGH SPEED PARALLEL PORT
4 MEG RAM (standard)
EXPANDABLE TO 65 Meg RAM
HIGH SPEED SCSI 1 & 2 CONT
CALL FOR MORE INFO

1999.95

YOU GET WHAT YOU PAY FOR

50MHz CBM A2630

Complete ACCELERATOR system with 4Meg 32 Bit Ram for the A1500/2000, comprising a FULL version 68030 CPU & 68882 Maths Co-Pro. Expandable to 112 Megabytes of true 32 Bit Ram with optional DKB A2632 Expansion board. Call for other pricing.

£1299.95

DKB 2632

32 Bit Memory Expansion for the Amiga A2630 Card. Now you can go beyond 4 Megabytes of 32 Bit Ram on your A2630 Accelerator - The DKB 2632 allows you to expand to 112 MEGABYTES.

BARE OK	£299.95	32Meg	£1399.95
4Meg	£449.95	64Meg	£2499.95
8Meg	£599.95	INFORMATION SHEET AVAILABLE	
16Meg	£849.95		

Sensory Sensations



There are times when you need a great-looking background to boost a boring illustration. There are also times when you need to make 3D objects look realistic but you don't have the right texture in your library. Well, here's a brief round-up to point you in the right direction.

ALTERNATIVE 3D TEXTURES

A few issues ago I had a look at *SurfaceMaster*, an American texture mapping helper for *Imagine* which contains various images for mapping on to 3D objects. It's now apparent that 3D surface manipulation is becoming increasingly popular, as the advent of a major new collection of textures from the UK proves. Its producer, *Alternative Image*, has been busy lately. As well as *Reverser* (reviewed later) it has just issued the first in its series of textures for 3D and 2D graphics work. And it's a big package!

Alternative 3D Textures comprises twelve disks, each containing one original texture in a variety of formats, and two bonus disks with utilities and examples for *Real3D* (version 1.4!) users. That's over 10Mb of picture data alone! The latest version of the excellent *View* program is also included for you to use for playing back animations and showing images in many formats.

I've been using the textures in a variety of programs and I've been very impressed with their quality. All the images are scanned in 24-bit from photographs and are provided

A magnificent demo image produced with *Real3D 1.4* which shows off *Alternative 3D Textures* to best advantage. Use them for picture backgrounds too

in the following standard formats:

- 400x400 24-bit (16M colour) ILBM
- 320x512 HAM (4096 colour) ILBM
- 640x512 8 colour ILBM
- 640x512 8 or 4 colour greyscale ILBM

The textures are taken from natural sources, sky, grass, trees and rocks, providing a rich choice of surfaces for 3D objects and 2D backdrops. I'm informed that they're all from holiday snaps taken by AI's own Henri Bujko!

Take note, though, that 3D texture mapping can be very memory intensive! Even with 11Mb of memory I found that two of the textures wouldn't load when I was using *Imagine 2.0*. I suspect this has something to do with the fact that my Amiga only has 1Mb of Chip RAM. However, by either converting them to RGBN or reducing their size, it was possible to use them.

Alternative 3D Textures are available from: Alternative Image, 6 Lothair Road, Aylestone, Leicester LE2 7QB. ☎ 0533 440041. And the price? A reasonable £40.

SCREEN-MAKER

Just as I was wrapping up this article I received a demo disk for *Screen-*

Gary Whiteley gets in touch with the latest textures as well as reviews of DigiTiger and VLab. PLUS: Reverser – an automatic file naming utility for your animations

Maker 2.2, from Digital Graphics Library which provides a glimpse into a collection of over a hundred 24-bit, professionally-designed images for video and graphics backgrounds.

There are six sample files which have to be decompressed from their .DGL format into 24-bit pictures before use. This doesn't mean that you need a 24-bit display device to use them, as the pictures could be

easy to achieve with CLI commands.

As you can see from the picture, quality is high. I was impressed with all 6 samples provided, especially in 24-bit. Oddly though, some of the 24-bit pictures are dithered! Surely this isn't right, but from what I've seen, the US price of \$99.95 looks reasonable, and for those without 24-bit displays, a Top 40 set of HAM images is available at \$79.95.

Lastly, for wedding videographers out there, a specialist set of 25 images is provided in 24-bit (\$89.95) and HAM (\$69.95). If they are up to the quality of the *Screen-Maker* pics I should think they'll go down well.

Keep your eyes peeled for *Screen-Maker* in the UK. If you can't wait – The Digital Graphics Library, 1382 Third Avenue, Suite #333, New York, NY 10021. ☎ 0101 212 978 8508 / FAX: 879 0707.

AND MORE TEXTURES...

On the subject of textures and things I thought I'd share this interesting press release with you. It originates from *AmReport*, an American electronic magazine for the Amiga community, also available on CIX...

TEXTILES IMAGES

Mannikin Sceptre Graphics Ships *TexTiles* Volume I & II

Mannikin Sceptre graphics announces *TexTiles*, a premier collection of true-colour seamless images for use in 3D rendering, image processing, page-layout and design programs. *TexTiles* will ship in 24-bit IFF format for the Amiga and NewTek's Video Toaster on June 1, 1992. Future releases will include 24-bit TIFF for the Apple Mac and IBM compatible graphics packages.

TexTiles are algorithmically

PRICING AND AVAILABILITY

TexTiles will be available through resellers and directly from Mannikin Sceptre Graphics for a suggested price of \$39.95 per volume. Each contains 40 true-colour images on 10 low density disks. The initial release will be comprised of two volumes – *Volume 1: Things That Go Bump* and *Volume 2: MegaMaps*. Demo disks are available for \$5.00, postage included.

Mannikin Sceptre Graphics, 1600 Indiana Ave, Winter Park, FL 32789 ☎ (407) 384-9484 FAX: (407) 647-7242

converted to other formats, though they will obviously look best in 24-bit.

One innovative aspect of the decompression program is that the picture dimensions can be anything up to 2048 x 2048, though the user can also opt for the less exotic overscan PAL or NTSC formats.

To utilise *Screen-Maker*'s full potential a hard disk is required. The 100 image files occupy around 3Mb in compressed format, or 100Mb when uncompressed! Decompression is quite fast, and is

generated textures simulating a variety of surfaces. Each measures 256 by 256 pixels, reducing memory requirements and allowing users with little memory to enjoy true colour image mapping.

Edge mapping ensures seamless transitions for tiling fills in paint programs and texture mapping in three dimensional rendering and modelling software. *TexTiles* are compatible with all software packages which support 24-bit IFF ILBM graphic file format.



The results of identical digitising setups. *Digi-View* (right) took more than twice as long to grab an image as *DigiTiger*. Neither image has been retouched

DIGITIGER II

I first encountered the *DigiTiger* video digitiser and RGB splitter combo in mid-1991 at the Ami Expo in Berlin. It looked interesting, so I left my card with its maker, hoping a review would follow. Now, a year later, I've had the opportunity to get my paws on version 2. What follows is a rundown of this German-produced grabber.

SNARLINGLY FAST

The packaging claims that *DigiTiger* is a fast operator and, at least compared to *Digi-View Gold*, this claim appears to be true – *DigiTiger* is at least twice as fast as *Digi-View* in all departments. Even at these speeds the *DigiTiger* produces consistently better overall quality than NewTek's original boss digitiser.

DigiTiger is the largest digitiser I've seen for the Amiga, closely resembling a Shorter Oxford English Dictionary in size. It is cream

coloured with black tiger-stripe transfers, powered by a mains adaptor (included) attaching to the parallel port by a generous length of cable. Composite video is fed to the rear of the unit via a Phono socket.

SOFT UND HARDWARE

On the front are three knobs which control brightness, contrast and colour. These affect the signal before it is digitised, and are thus useful for adjustments and corrections to the video to be digitised. By increasing the Contrast fully, for example, a line art effect can be obtained. A fourth knob, marked SYN, is for dealing with synchronising errors produced by some VTRs.

Now for the software. Provided on the single disk is the main program, some demo pictures, and a slide show program for viewing them. Strangely, while the manual is entirely in German, the program is also available in an English version.

This helped me no end, as I really haven't got to grips with words like Spannungswahlschalter yet. Roll on 1993, then we'll really be in trouble!

A quick double click on the program icon and we're off. All the usual Amiga features – pull down menus, colour palettes, screen resolutions – in fact, there seems to be nothing unusual here.

EASY MONITORING

At least until you find the Test command, which activates a useful feature for monitoring what your video source is up to. Though Test only operates when the screen resolution is set to lo-res (320 x 256) it does allow you to view the video on your Amiga monitor – for previewing, this is sufficient. For those who use cameras with no viewfinders or prefer to see a larger image than on miniature monitors or who digitise direct from VCR, the Test setting will be a help. Incidentally, although *DigiTiger* is nippy, it isn't a real-time digitiser, so any VCR used for digitising must be capable of a steady freeze frame.

DigiTiger has 8 preset screen sizes to choose from, ranging from standard 320 x 512 lo-res to 704 x 560 hi-res. Size is set before digitising, but the number of colours is determined after the picture has been grabbed. Anything up to 4096 (HAM) colours can be used, depending on the screen resolution.

There are six settings for the digitising method, Test being one of them. Of these, two are more novelty effects than serious methods, with Antique giving a sepia tone to the grabs and Pseudo-Colours giving a psychedelic false colouring to the digitised image. The remaining three, Black and White, Colour Manual and Colour Auto, are by far the most useful. Black and white does as its name suggests and grabs only in black and white. Colour Manual is useful for those who use a black and white camera with a colour filter wheel as the user is prompted to change the filter colour after each separate pass. Colour Auto utilises the *DigiTiger*'s built-in colour splitter for digitising colour composite video from cameras and other sources.

Once an image has been digitised, a Colour Mixture requester appears with selections for the number of colours (2 through 4096), colour control (Red, Green or Blue increase/decrease), palette commands and HAM sharpness. Most of these functions are self-explanatory, though the Palette functions need a little clarification.

The Palette commands consist of a bar marked Fix, Auto and five other settings marked A to E. Some of these are for optimising the palette of the digitised picture, while the Fix

setting forces all subsequently digitised images to be mapped with the same palette – very useful for those who wish to make animations in *DPaint* with a grabbed sequence.

UNDER SCRUTINY

How well does the *DigiTiger* perform? I tested it under various conditions with black and white, colour and VCR inputs and I found the results were very good. I had to spend some time making small adjustments to the front panel controls, but I was satisfied with *DigiTiger*'s output. In a head to head with *Digi-View* (my standard digitiser) the *DigiTiger* shone in most departments. Speed and quality were almost always better when using the *DigiTiger*. The only minus is in the software and the lack of RGB saving. As far as image manipulation goes *Digi-View* offers more flexibility in processing, while *DigiTiger* provides it mostly in hardware. Pictures cannot be loaded back into *DigiTiger*'s software for reprocessing as with *Digi-View* and more options for software control over dithering would be useful. Other than that I liked *DigiTiger* a lot.

DigiTiger works with all Amigas, and should be compatible with most turbo cards. 1Mb RAM or more is recommended.

SHOPPING LIST

DigiTiger II(ex VAT) DM507
(expected UK price around £200 inc VAT)
Available from: Klaus D Tute,
Soft-, Art-und Hardware,
Kirchroder Str.49D,
3000 Hannover 61
☎ 010 40 0511 551701
At the time of writing
DigiTiger has no UK
distributor, though one
is being actively sought

CHECKOUT DigiTiger II

Documentation	????
It's all in German at the moment, but it looks very comprehensive.	
Features	● ● ● ● ● ○
Replete in both hardware and software.	
Ease Of Use	● ● ● ● ● ○
Very simple to set up and use.	
Speed	● ● ● ● ● ●
Blisteringly fast.	
Output Quality	● ● ● ● ● ○
Very high standard.	
Price	● ● ● ● ● ○
Perhaps a little high, but probably worth it.	
Overall rating	● ● ● ● ● ○
A good value all-round digitiser if you need speed and quality.	

FORTHCOMING ATTRACTIONS

New software is being developed for *DigiTiger II* which should be available soon. It will include:

- Direct support for different graphics cards such as AVideo12/24
- RGB saving (for 12/24-bit format)
- ARexx interface
- User definable colour palette
- One step digitising and saving of a frame sequence
- DTP mode to convert colour to 2 colour or greyscale dithered images
- Remote control for frame grabbing for VTRs with frame advance facility

Sounds good, doesn't it?



An easy-to-operate menu is the heart of *Reverser*. Point and click for action

REVERSER

I must admit I was sceptical when I first heard of *Reverser* – I honestly thought I was having my leg pulled! But stranger things have happened and when a plain brown envelope came through my letter box I was not surprised to find a copy of Parcsoft's *Reverser* (version 3.14569) inside.

One look at the packaging and I was almost convinced that *Reverser* was an elaborate joke. "Also available for NCube, CrayX1 and Armitage Shanks", the blurb said. "Programmed by Dr Anthony Cwik using a transputer based CebelfourBox". Good grief – had the folks at Alternative Image lost their reality pills?

BUT SERIOUSLY FOLKS!

Yes, *Reverser* actually does exist and does what it says it does. Which is very simple really. *Reverser* manipulates file names. (Readers drift away to marvel at traffic lights changing, thrill at paint drying etc). What's more, it's very handy, if you're an animator. Let me explain...

If you make an animation with, for instance, *DPaint*, and then save all the frames as separate pictures, they will be numbered in sequence as NAME001, NAME002 etc. Fine and dandy if that's what you need. But, being an animator, you might want to use this sequence of pictures as part of a more complex animation that you're building in a 3D program such as *Real 3D*, *Imagine* or *VideoScape*. The only problem is that there is no standard naming system for picture files. *Real3D* appends files as NAME0, NAME1, *Imagine* requires them to be called PIC.0001, PIC.0002, *VideoScape* names files Pic01, Pic02 etc and *Sculpt* wants files like

NAME.1.image. This means that every time you want to load a set of pictures into one of these programs they have to be renamed.

To give you an idea of the usefulness of *Reverser* let's say I've prepared a 20 frame animation in *DPaint* which I want to have playing back on the screen of a 3D television that I'm animating in *Imagine*. The first step is to save the frames as separate images, which *DPaint* will call Pic001 to Pic020. But *Imagine* requires that they are called Pic.0001 to Pic.0020. OK, it's fairly easy in this instance to rename them by hand, especially by using a utility like *DiskMaster*, *SID* or *Directory Opus*. But what if I had 200 frames to rename instead of 20? A small task would become a grinding chore. However, after using *Reverser* I'll never go back to my old powder!

SIMPLICITY ITSELF

All that's required is to load up *Reverser* from the CLI or Workbench, select the picture sequence I wish to manipulate and then select the format I wish to rename it to from the side panels. After confirming my selection, *Reverser* renames all the associated files. As simple as that.

Currently supported systems are *Real3D*, *Imagine*, *DPaint*, *Sculpt* and *VideoScape*, though I understand at additions are being made to cater for *Caligari*, *Lightwave3D*, *VistaPro*, *Draw4D* and *3D Professional*.

Reverser does several other useful tasks. It can rename a picture files in reverse order – where the first frame becomes the last, the second the penultimate and so on. Pay attention here, budding animators. This may seem like a merial task, but try doing this by hand sometime? Then you'll see my point.

VLAB

a snappy snapper

By happy coincidence another German digitiser came my way this month. Called the *VLab*, it is an internally-mounting, half-size, Zorro II, high quality fast-scan frame grabber for Amiga 1500/2000/3000 computers and it costs £299. Interested? Then read on...

VLab uses custom video chips usually found in more expensive video equipment and communicates with the outside world via two software selectable composite video inputs. The image is grabbed by the video chips and then stored in an on-board 768K buffer, which gives *VLab* the capability of grabbing a frame in real time from any composite video source, including non-time base corrected VTRs.

QUALITY CONTROL

As *VLab* digitises images in a YUV format (video chrominance and luminance combined) it is possible to achieve very high quality grabs and whilst these are not 24-bit there is only minimal loss when a YUV grab is converted to 24-bit. In fact, there is really no point to grabbing in 24-bit anyway since an overscan 720 x 580 image can only have a maximum of 417600 colours, or approximately 18 bitplanes, not 24. However, the grabbed image can be directly displayed on ACS's Harlequin board for full effect and can be later retouched with *TVPaint*, for example.

As *VLab* also handles NTSC video with ease I tried a small experiment. I connected the output from a Video Toaster directly to the *VLab*, switched it to NTSC, and then grabbed a frame from one of the Toaster's framestore images, which are very high quality. I then converted the YUV grab to 24-bit and redisplayed it with the Toaster. The quality was magnificent!

In fact, I tested *VLab* with VHS, Hi-Band U-Matic, Hi-8 and off-air video, and, though obviously limited by the characteristics of each

format, I was very impressed with the quality of grabs which could be obtained.

The higher the quality you feed to *VLab*, the better the results you get back.

Two things struck me immediately about the *VLab* software – its clean-cut look and how easy to use it was. And no need to worry about learning German as an English version of the

VLAB SPECIFICATIONS

- Zorro II card for A2000/3000
- 768Kb high speed field memory RAM (buffer)
- Two software-selectable composite video inputs.
- 720x580 maximum resolution
- Real time grabbing of single frames

software is provided. After a little experimenting I discovered how to configure *VLab* to my needs and start grabbing. Believe me, this software is flexible!

For a start, there are loads of options. Want an on-screen monitor to see what's happening with your video source? No problem, though it's always in black and white for speed. Want to check that you just grabbed the right picture? No problem – configure the Preview screen, which is scalable, windowable, B&W, colour or displayed on Harlequin. Want to grab in hi-res colour? No problem, choose from full-frame, colour, hi-res, and set the image size to anything up to full-frame overscan! And there's more, in the shape of colour, brightness, contrast and gamma correction and chrominance, luminance and noise filtering.

AUTO PREVIEW

Grabbing is effected by defining the required screen format, then simply hitting a hot-key or a mouse click on a gadget. If auto-preview is selected, a representation of the grabbed YUV image will appear on screen, in an Amiga mode of your choice. The YUV image will remain in the *VLab*'s buffer until cleared or replaced by a new grab.

Sometimes a problem arises in

continued on page 72

Just why is this feature so useful? Often the easy way to make an animation do what you want is to construct it in reverse from its end frame to its start. An example would be a scratchback sequence where a logo has to build up on to screen. It is far easier to start at the last frame and work back, erasing parts from the finished logo, arriving at a blank screen. Now the frames all have to be played backwards to get the correct effect. This is no problem with *DPaint*, but where a single frame rendering system is in use, the images may have to be renamed before recording to videotape, or the logo disappears off screen, rather than appearing on screen. Reverse naming becomes a cinch.

Another useful task is to batch copy a set of named files. This could be from one directory to another, or to the same directory, as an option for renaming the files is included. This function saves time spent flipping between a housekeeping program like *SID* and *Reverser*.

Reverser's last trick is to be able to shift the numbering of a file sequence using an offset added to the end of a name. Typing *Frame+5* will renumber all the current frames and add five to each of them. Negative offsetting is also available.

SAY WHAT?

Reverser also has a built-in, though dubious, novelty. It talks to you while it works! Just when you thought you'd never hear the wonderful metallic drone of *This is Amiga speaking* ever again. My recommendation - turn the volume down, unless you're an android.

Reverser was not without its odd problems though. Its device

requester didn't recognise my DH2 hard drive partition. However, a quick call to Alternative Image resulted in a bug swatting team being deployed - I'm told this problem has now been eradicated, along with a couple of other bugettes.

My conclusions? *Reverser* is not a wind-up, despite the flippant packaging. It takes the strain out of tasks which should be simple but which are actually fiddly, saving frustration and time-wasting. *Reverser* multitasks and should run on any Amiga. If you are a serious animator I recommend *Reverser* as a tool you really shouldn't be without.

SHOPPING LIST

Reverser by ParcSoft £10.00
Available from Alternative Image Prods
6 Lothair Road,
Aylestone,
Leicester LE2 7QB
☎ 0533 440041

CHECKOUT REVERSER

Ease of Use ●●●●●
Any easier and it would run itself.

Documentation ●●●●○
Forest-savily brief. Almost to the point.

Price ●●●●●
It's cheaper than some shareware!

Overall rating ●●●●○
A must have for animators.

PS: I checked with Parcsoft and the version for the Armitage Shanks probably won't be ready for a while yet. So don't hold your breath...

SCALA 2.0 LAUNCHED

Scala drew the crowds as the latest version of the Amiga's leading multimedia software was unveiled at the MultiMedia Show, in London.

Aptly named *Scala MM2.00* (MM for MultiMedia), a stunning array of new features has been incorporated into what is already the software choice for many presentation professionals. Enter the Scala Shuffler, where iconified images can be cut and pasted for easier and faster editing, more transitions, including flip, stretch and flow, and add improved text handling, fast animation and picture loading from hard disk, synchronised playback of sound samples, DCTV support and, most importantly for presentation managers, on-the-fly timing recording, so that a presentation can now be timed to the millisecond simply by clicking the mouse.

Another new feature is *Scala EX*, where modules are added to expand the program's capabilities to control such applications as Laserdisc, MIDI, CDTV and ARexx ports. New modules are easily added when available.

The cost for *Scala MM2.00*, which will be in the shops by the time you read this is, is £395 + VAT. Upgrades will be available to registered users. Judging by the amazing *Scala* demo that was running on the Commodore stand it looks like the future of multimedia on the Amiga is secure.

For further information contact Scala UK Ltd on 0920 444294 or your local software dealer.

continued from page 70

grabbing live video where movement between the consecutive fields which make up the frame causes a very noticeable juddering of parts of the image to take place. By using VLab's De-Interlacing command it is possible to resolve the grab into a stable picture. The downside to this is that there is some quality loss because the de-interlacing also results in a significant reduction in the number of lines used to make the picture.

CHOICE OF FORMATS

For Amiga owners who don't have access to a 24-bit display device, such as the Harlequin, VLab can convert the buffered YUV grab into a number of standard Amiga IFF formats as well as IFF24. So anything from 16 colour hi-res to 4096 HAM interlace can be saved for future use, though of course the image quality will be less than that of either YUV or 24-bit formats.

While VLab excels in grabbing single images, it can also grab sequences, though the speed at which it does this is dependent upon the size and format chosen for capture.

Anything like real-time, 25 frames per second, grabbing can only be approached when the desired (output) image is kept small and/or in low-resolution monochrome. This is not the VLab's fault, rather that the Amiga simply cannot shift data at a fast enough rate internally and even with an accelerated Amiga it is probably impossible to achieve both high quality and high-speed when sequence grabbing. A solution to this shortcoming is to use a video deck capable of single frame jogging and perfect freeze and grab the images one by one to build up a sequence which can then be manipulated/animated etc.

Once grabbed, the sequence can be de-interlaced and converted to images in the chosen Amiga IFF format by using the provided ARexx "SequencetoAmiga" script. Of course, this necessitates the use of ARexx, but since this is supplied with WB2.04 there is no excuse for not using it.

RESTRICTIONS

VLab is currently only suitable for A1500/2000/3000 Amigas in which the 2.04 operating system is installed.

A hard drive is almost essential, as VLab produces files which can easily be over 550K in size. An accelerator would also help greatly,



Macro
System's VLab is great
for videographers wanting to grab a
slice of the action

as processing from native YUV format to Amiga format can otherwise take several minutes.

Finally, I have to say that I really enjoyed using VLab, and that it could have a lot of practical uses, even though its maximum resolution (720 x 580) is actually a little shy of full PAL overscan (768 x 580), which could present problems for full-screen video needs. Even so, I strongly recommend that you take a look at VLab if you need a serious, fast-scan video digitiser.

Gary Whiteley can be e-mailed as
drgaz@cix.compulink.co.uk.

SHOPPING LIST

VLab £299
by Macro System
Distributed in the UK by:
Amiga Centre Scotland,
Harlequin House,
Walkerburn,
Peebleshire EH43 6AZ
☎ 089687 583

CHECKOUT VLAB

Documentation ●○○○○
Yes, but all in German.

Quality ●●●●●
Extremely high quality grabbing.

Speed ●●●○○
Instant grabs, but can be slow saving to Amiga formats.

Price Value ●●●●○
VLab represents very good value for money.

Overall rating ●●●●○
A damn fine frame-grabber.

Thanks to Meridian Film and Video in Paddington for use of their edit suite during some of the testing of VLab.

VIDEO USERS!

VIDEOWARE PRESENTS A NEW AND INNOVATIVE
CONCEPT IN VIDEO TITLING

The Videogold Collection

12 Disks full of superb animations and effects to transform your videos into professional looking productions instantly!!

Mix and match the animations with your own text or use our specially designed brushes and animbrushes supplied to give you **ENDLESS** variations and cover **EVERY** occasion.

Designed by Graphic Artists, the volumes cover Weddings, Birthdays, Sport, Holidays, Parties, Children, Special occasions and much more!

All will run on Amigas with a minimum of 1 Meg and DPaint 3 or 4 and any other graphics or Multimedia program supporting anims/animbrushes.

Animated Wedding Album, Christenings,
Animated Copyright Messages, Holidays and Places, Anniversaries, Christmas - You name it!!

And The Price? JUST £29.99 FOR THE 12 DISK COLLECTION

Don't worry if you have little or no graphics experience. The **VIDEOGOLD COLLECTION** comes complete with a full user guide to enable you to get the most from the disks - we even supply a hot-line for those who need further assistance.

Please make cheques/P.O.'s payable to **VIDEOWARE** and send your order to:

**VIDEOWARE, DEPT (AS)
50 HEATHER CLOSE
LOCKING STUMPS, BIRCHWOOD
WARRINGTON WA3 7NX**

Or telephone 0925 851559 for further information, help or advice.

Reach the top with.....

LCL Self-Tuition Courses

World leaders • Hons graduate/teacher authors • In educational software charts.
• Excellent reviews • £5 off total for 2, £10 off for 3.

MICRO GERMAN (Beginners - GCSE & business)

Complete course with real speech, adventure game and business letter generator, 24 programs + book and manual. Superb graphics & music. £24

MICRO FRENCH (Beginners - GCSE)

Complete course with real speech & graphics adventure game, 24 programs + a book and a manual. Superb graphics and music. £24

MICRO MATHS (11 years - GCSE)

Best selling GCSE maths course in UK. For ages 11 upwards in 24 program options plus a book and manual. Superb graphics and music. £24.

MICRO ENGLISH (8 years - GCSE)

Complete course. Also for EFL. Teaching spelling, reading, writing and oral with real speech, 24 programs and a book and a manual. Superb graphics and music. £24.

PRIMARY MATHS COURSE (3-12 YEARS)

Complete course with full screen colour graphics. NATIONAL CURRICULUM (Levels 1-4). 24 programs + a book and a manual. £24.

READING WRITING COURSE

NATIONAL CURRICULUM (A.T. 1-5) 24 program course teaching reading, writing & spelling with a book, manual and voice tape. £24.

MEGA MATHS (A level course)

Step-by-step course of 24 programs + a book and manual. Full screen graphics for calculus. £24.

A500 PLUS
OR AMIGA

PHONE NOW
FOR
IMMEDIATE
DESPATCH

(*LCL courses are compatible with the N.C where appropriate) Update only £5 + proof of purchase. Send cheques/PO's (+99p P&P) or phone orders or requests for free colour

LCL (DEPT AMS), THAMES HOUSE, 73 BLANDY ROAD, HENLEY-ON-THAMES, OXON RG9 1QB



or ring 0491 579345 (24 hrs)

* * * * *

Price Busters!!

* Graphics & General

Advantage.....	64.99
AnitA	24.99
Art Department Pro 2....	139.99
Baby	9.99
Big Alternative Scroller ...	34.99
Broadcast Titler 2.....	154.99
Deluxe Paint IV	54.99
Expert Draw	49.99
Expert 4D Jr.....	39.99
Font Grabber	29.99
Hotlinks	49.99
Imagine 2.0	189.99
Mediastation.....	119.99
Personal Finance	
Manager	19.99
Personal Font Maker	34.99
Professional Calc	99.99
Pro Draw 3.0 - NEW!	89.99
Real 3D Beginners	99.99
Scala.....	179.99
Scala 500.....	64.99
Scenery Animator	49.99
Take 2	34.99
Video Director	99.99
Video Fonts	39.99
Vidi Amiga.....	84.99
Vidi Colour Solution	139.99
Vista Pro 2	49.99
XCAD 2000 - NEW!	99.99
XCAD 3000 - NEW!	299.99

Quarterback Tools	44.99
SAS C	159.99
Turbo Print Pro	39.99

Hardware

Boot Selector Switch	14.99
512K RAM with clock	29.99
Colourburst	399.99
1.5Mb RAM with clock	82.99
Invision Plus/Live	499.99
Flicker Free Video	
A500	269.99
Kickstart Switch with 1.3	
ROM	44.99
Naksha Mouse	22.99
Optical Mouse	29.99
RGB Splitter	59.99
RocGen Genlock.....	84.99
RocGen Plus.....	129.99
RocLite Drive	54.99
Roc Key	269.99
Podscat Graphics	
Tablet	189.99
Touch Screen	
for Amiga.....	229.99
3 Button Track Ball.....	34.99
Zydec Trackball.....	29.99
Zydec Amiga Drive.....	49.99
Zydec A500	
1Mb RAM Card	44.99
Zydec Hand Scanner	119.99

* Educational

Better Maths	14.99
Better Spelling	14.99
Compendium 6	24.99
Distant Suns 4.1	39.99
Fun School 4 Series	15.99
GB Route Plus	54.99
Junior Typist	11.99
Maths Mania	14.99
Micro Series	16.99
Tekno Amiga	69.99
Three Bears	14.99
Voyager 1.1	16.99

Development & Utilities

AMOS	29.99
AMOS 3D	22.99
AMOS Compiler.....	19.99
Easy AMOS	22.99
Anim Fonts 1, 2 & 3	29.99
Blitz Basic	49.99
Can Do V1.6	64.99
Dev Pac 3.0	49.99
Directory Opus.....	25.99
Diskmaster.....	32.99
HiSpeed Pascal	64.99
Home Accounts 2	36.99
Maxiplan 4.0	34.99
Quarterback 5.0	39.99

Music & Sound

AD1012/Studio 16	
Card	399.99
Audio Engineer Plus 2 ..	149.99
Audition 4	34.99
Deluxe Music Const.	
Set.....	49.99
Megamix Master	29.99
Perfect Sound	39.99
Pro Midi Interface	19.99
Sound Enhancer -	
NEW!!	29.99
Stereo Master	29.99
Techno Sound Turbo.....	29.99

DTP & Wordprocessing

Excellence 3.0.....	59.99
Gold Disk Type	29.99
Kindwords 3.0	34.99
Page Setter 2	34.99
Page Stream 2.2	129.99
Pen Pal	49.99
Protext V5.5	99.99
Professional Page 3.0 ..	129.99
Quickwrite	29.99
Scribble	22.99
Transwrite	29.99
Wordworth 1.1	79.99
Works Platinum.....	49.99

Post & Packing add 25p
Securicor add £5

48 hour despatch (cheques 7 days)

Cheques should be made payable to Softstore
Access and VISA cards accepted

Softstore, 410 Bath Road, Slough SL1 6JA

0628 - 668320

CALLERS WELCOME

* * * * *

STOP PRESS
GCSE SOFTWARE
PACK - CALL!!

**WE WANT TO
BEAT ALL
PRICES!!**
CALL US!!

**ST ALBANS
SUNDAYS**
10.00AM - 4.30PM

Hobbyte

COMPUTING
ESTABLISHED 8 YEARS

10 MARKET PLACE ST. ALBANS
HERTS AL3 5DG TEL (0727) 58005/41396
THE GALLERY ARNDALE CENTRE LUTON,
BEDS LU1 2PG TEL (0582) 457195/411281

HOW TO USE THIS AD
For the first time ever, you can choose your own Amiga and software combination, and still benefit from the huge savings only available from package deals.
Want an A500 with 1500 software?
No problem!
Like an A1500 without games?
It's up to you!
All we ask is that you choose at least 1 software pack when you order your hardware (optional on CDTV, A3000 or CBM 386)

A3000 25MHZ

	52MB	100MB	240MB/425MB
2MB	£1889	£2039	Phone
2MB + 7CM MONITOR	£2139	£2289	Phone
6MB	£2049	£2199	Phone
6MB + 7CM MONITOR	£2299	£2449	Phone

ALL PRICES INC. VAT
With SCALA, D Paint IV and AmigaVision
Trade-in available

ADD £299

AMIGA 600

1MB, WB 2.05, 3.5" FD + Smart Card Interface
+ 12 month on-site warranty

	ALONE	WITH 8833/1084
A600	£334*	£524*
A600 20MB HD (larger available)	£434*	£624*

2MB VERSION ADD £45

* See below/across for software packs

Hobbyte are setting **NEW LOW PRICES** for A600s!!
These prices are our best guess as we go to press, but telephone before ordering. We may be able to do better!!

STARTER PACK I

	MAX VALUE/RRP
• 10 Blank Discs + 80 capacity lockable disc box	26.98
• Mouse Mat	4.99
• Virus Killer Disk	4.99
• DPaint III or Home Accounts	79.99
TOTAL VALUE	116.95
WITH AMIGA/CDTV SEPARATELY	17.99 24.99

NO OTHER DEALER CAN BEAT OUR CREDENTIALS

- 8+ years experience in Commodore product and here to stay
- Commodore trained staff are friendly and helpful and are parents, multimedia, educational, games, programming or technical specialists (usually more than one!)
- Open 9-6 pm Monday to Saturday and 10.00 am to 4.30 pm Sundays for convenient shopping.
- Callers welcome for advice and demonstration at our 1600+ sq ft High St, Town Centre branches
- Next day delivery for most orders received by 5 pm; express am and Saturday services available
- Hardware carefully handled and delivered safely and reliably by caged, insured, top name courier service
- 100% pre-despatch testing on Amigas
- Free 30 day, next day courier collection and delivery of NEW replacement (except product with on-site maintenance)
- Hotline support and in-house engineers
- Upgrade and trade in offers to keep you up to date
- Exceptional after sales service

NOT JUST ANOTHER MAIL ORDER COMPANY

For years a major player in Amiga Mail Order, Hobbyte also boasts extensive experience and expertise in specification and support of multi-machine and specialised systems. Hobbyte have been recommended and trained by Commodore and successfully won major orders and support contracts from London Boroughs, MOD, educational establishments etc. We are pleased to be placed on tender lists.

This expertise is available to all our customers.

AMIGA 500 PLUS

Full UK spec, inc. mouse, power supply, leads & manuals, etc. inc.

	ALONE	8833/1084
1MB	329.00	519.00
2MB	369.00	559.00
Zydec external drive with on/off & daisy chain port	ADD 48.00	
Also with Kickstart 1.3 + ROM Shaver for switching between 1.3/2.04 to eliminate compatibility problems	ADD 39.90	

CARTOON CLASSICS GAMES PACK EXTRA (1MB REQUIRED)

	VALUE/RRP
• Cartoon Classics Games: Lemmings	25.99
The Simpsons	24.99
Captain Planet	25.99
• Deluxe Paint III with animation	79.99
• 3 Disc Home Pack including Word Processor, Spreadsheet, Database or PD Games compilation	9.99
TOTAL VALUE	161.96
WITH AMIGA/CDTV SEPARATELY	15.99 29.99

1500 PACK EXTRA (ALSO FOR A500, A500+, A600 CDTV, 3000)

	VALUE/RRP
• The Works Platinum, word processor, spreadsheet, database	169.95
• Deluxe Paint III with animation	79.99
• Get the most out of your Amiga book	9.95
• Hobbyte 50 Programme PD Greats Pack II	39.95
• Puzzle	24.99
• Toki	24.99
• Digital Home Accounts	29.99
• Elf	29.99
• Microswitch Turbo Joystick	9.99
TOTAL VALUE	418.79
WITH AMIGA/CDTV SEPARATELY	49.99 69.99
SPECIAL: Also with Cartoon Classics Games	ADD 12.99

WHAT THE CUSTOMERS SAY

"...extremely courteous and rapid response to my problem..." "I will not hesitate to recommend you to my colleagues."

Dr Darrel Maddy - Slough

"Thank you for dealing so promptly with my requests..." "I was reluctant about ordering my computer mail order. However I have been very pleased with my dealings with Hobbyte - you are to be commended for your customer service."

Trevor Patterson - Bangor

"We have dealt with many of the leading computer suppliers; in the past, but the service you provided was second to none."

E W Bailey - Preston

"...Thank you for everyone's good service..." "it arrived at 7.20am the next morning."

David J Thomas - Wolverhampton

"I was very impressed with the service I received in the first instance, I really appreciated how quickly you managed to get the printer despatched from your Luton branch for me."

J S Casadinas - Amersham

AMIGA 1500/2000

Full UK spec, with 1MB RAM, mouse, expansion as 2000, leads, manuals. New including Kickstart & Workbench 2.04.
Hard disc configuration inc. the high performance GVP II controller card, EXPANDABLE TO 8MB. Fast reliable 52MB + 120MB Quantum Drives are used.

	ALONE	WITH 8833/1084	WITH 7CM + FFIXER
Dual Drive	495.00	685.00	859.00
DD+GVP+20MB HD	699.00	899.00	1065.00
DD+GVP+52MB HD	765.00	969.00	1129.00
DD+GVP+120MB HD	908.00	1112.00	1272.00
Per extra 2MB fitted to GVP			ADD £60.00
Also with Kickstart 1.3 + ROM Shaver			ADD £39.90
Also with XT/AT BB for PC compatibility			ADD £95-£200.00

CDTV

	AS ABOVE	WITH MATCHING DRIVE KEYBOARD, MOUSE + WB 1.3
As above	£339*	£379*
With Goldstar Black TV monitor + remote control	£498*	£538*

Extra RAM EPOA

* When you trade in your old Amiga 500 -
phone for details.

For price without trade in - please phone

See below/across for software packs.

**NEW
PRICES!**

THE HOT LOT PACK (1MB REQUIRED)

	VALUE/RRP
• Cartoon Classics Games: Lemmings	25.99
The Simpsons	24.99
Captain Planet	25.99
• Deluxe Paint III with animation	79.99
• 10 GREAT individually packaged games, previous RRP's up to 39.99 each, phone to choose from current list, or leave it to us! Children's games available.	269.82
• 50 Programme Hobbyte PD Great Packs II	39.99
• Dust Cover + mouse mat	9.98
• 10 Blank Discs + 80 Capacity Disc Box	26.98
• Microswitch turbo joystick	9.99
TOTAL VALUE	513.72
WITH AMIGA SEPARATELY	59.99 79.99
SPECIAL: ALSO 10 extra great games	ADD 25.00

PROFESSIONAL FAMILY PACK (1MB REQUIRED)

	VALUE/RRP
• Cartoon Classics Games: Lemmings	25.99
The Simpsons	24.99
Captain Planet	25.99
• Deluxe Paint III with animation	79.99
• The Works Platinum Word Processor, Spreadsheet and Database	169.99
• Their Finest Hour, Flight Simulator	29.99
OR Back to the Future and Postman Pat (1.3 only)	
OR Digital Home Accounts or Edd the Duck	
• Virus Killer Disk	4.99
• 50 Programme Hobbyte PD Greats Pack II	39.99
• Hobbyte Infant, Junior (specify) or Secondary Educational Pack	19.99
• 10 Blank Discs + 80 Capacity lockable disc box	26.98
• Mouse Mat + Dust Cover	9.98
• Turbo Microswitch Joystick	9.99
TOTAL VALUE	468.86
WITH AMIGA/CDTV SEPARATELY	79.99 99.99
SPECIAL: Also with Star LC 200 9 Pin Colour Printer and Starter Pack	ADD 180.00
Also with Citizen 224+24 Pin Colour Printer and Starter Pack	ADD 230.00

NEW

COMMODORE 386SX GAMES + WP PACK

CBM 386 16MHZ, 40MB HD, 1MB EXP RAM, 3.5" DRIVE, VGA 14" COLOUR MONITOR

- CD quality stereo speakers
- Sound card
- Mouse
- 8 entertainment titles: Wing Commander, Hard Drive 2, Midway 29, Trivial Pursuit, Escape from the Planet of the Robot Monsters, Pitfighter, Castle Master, Super Space Invaders
- Secretary Bird WP, Spreadsheet, Database
- DOS 5
- Full 1 year on-site warranty

£789*

Also with Star LC 24-20 Printer, lead, paper and printer stand

£975*

*** EVEN LESS
WITH PART EXCHANGE!!
-PHONE!**

COMPLETE RANGE OF PC'S + NOTEBOOKS AVAILABLE

A3000 24 BIT SYSTEM THE ULTIMATE!!

- Extra 4MB Fast RAM
- Progressive 68040 accelerator
- 24 bit colour card
- Vlab 24 bit colour real time digitizer
- 24 bit 3D Art + animation s/w
- Fitting and Free 1/2 day customised training

TOTAL RETAIL PRICE OVER £6,000

HOBBYTE PRICE £3995 INC VAT

**mitsubishi
G650/40**

A3 postscript colour ink jet printer, 8MB with starter kit

HOBBYTE PRICE £7349 INC VAT

FINANCE AVAILABLE
written details on request

ABSOLUTE BEGINNERS PACK 3-9 YEARS

VALUE/RRP

- Fun School 2, under 6 years, 6-8 years or 8+ years 19.99
- Fun School 3 or 4, specify under 5 years, 5 to 7 years or 7+ years
- 12 stunning UK educational games with beautiful pictures, exciting animation and music that helps to develop number, word and other skills. Up to 6 skill levels. Conform to National Curriculum requirements. 24.99
- Postman Pat (1.3 only), OR Ed the Duck (7+ years) OR Matched Pairs OR Blinky's Scary School 14.99
- Hobbyte Infant or Junior (specify) Educational Pack, featuring up to 12 "Learn while you play" games 19.99
- Hobbyte 30 Easy Children's Games, 10 pack disc including Trivia Set and other top entertaining PD titles 19.99
- 10 Blank Discs 6.99
- Joystick 9.99
- Deluxe Paint II/Photon Paint II or Elf or Puzzle 89.99

TOTAL VALUE 206.92

WITH AMIGA/CDTV 49.99

SEPARATELY 69.99

SPECIAL: With Cartoon Classics Games and Dpaint III + animation instead of Dpaint II/Photon Paint II (1MB req.)

VALUE 80.00

ADD 14.99

AMOS PROGRAMMER'S PACK (1MB REQ.)

VALUE/RRP

- EASY AMOS - complete, simplest possible, fun-to-use beginners programming course. Learn to write professional looking arcade games, educational, etc. software in weeks, not years. Complete with graphics, sound, animation and more. Upgradeable to Amos. 34.99
- Cartoon Classics Games: OR
- Lemmings Elf 25.99
- Captain Planet Puzzle 25.99
- The Simpsons Digita Home Accounts 24.99
- 50 Programme Hobbyte PD Greats Pack 39.99
- 20 Blank Discs + 80 Capacity Lockable Disc Box 33.97
- Mouse Mat + Dust Cover 9.98
- 'Get the Most out of Your Amiga' book 9.95
- Microswitch Turbo Joystick 9.99

TOTAL VALUE 215.84

WITH AMIGA/CDTV 59.99

SEPARATELY 79.99

As above, but with:

- Amos the Creator instead of Easy Amos

WITH AMIGA/CDTV 69.99

SEPARATELY 89.99

NOTE: For both above packs, a second floppy or hard drive and a printer for testing are recommended, but not essential

TRAMPY'S OR THOMAS'S PACK 2-9 YEARS

AT LEAST 57 EDUCATIONAL/FUN FILLED GAMES

MAX VALUE/RRP

- The Shoe People - 6 colourful and entertaining games featuring Trampy and friends to encourage early number reading and pre-reading skills. With Shoe People music OR Thomas the Tank Engine's Fun with Words - 6 separate easy to use learning programmes with animation and sound. 29.99
- Shapes and Colours - Bobby the Clown entertains and lays down the foundation for maths and writing in 6 colourful animated games. 9.99
- Fun School 2, 3 or 4 - the "Fun School" suite have won just about every award going. 5 or 6 wonderful animated games. 24.99
- OR Picture Book - 4 colourful and amusing games from ex "Fun School" design manager will delight young children.
- Deluxe Paint II/Photon Paint II or Elf or Puzzle 89.99
- Hobbyte Infant Educational PD Pack, containing 10 fun while you learn games 19.99
- Hobbyte 30 Easy Children's Games Pack 19.99
- 10 Blank Discs, Disc Box, Joystick, Mouse Mat 26.96

TOTAL VALUE 221.90

WITH AMIGA/CDTV 49.99

SEPARATELY 69.99

SPECIAL: With Cartoon Classics Games and Dpaint III + animation instead of Dpaint II/Photon Paint II (1MB req.)

VALUE 80.00

ADD 14.99

ARTISTS PACK

VALUE/RRP

- Deluxe Paint III with animation (upgradeable to DP IV) 79.99
- Power 400dpi scanner with Powerscan professional s/w 99.99
- 10 disc Hobbyte PD Graphics Pack inc. clip art + utilities 39.99
- Cartoon Classics Games: OR
- Lemmings Elf 25.99
- Captain Planet Puzzle 25.99
- The Simpsons Digita Home Accounts 24.99
- 50 Programme Hobbyte PD Greats Pack 39.99
- 20 Blank Discs + 80 Capacity Lockable Disc Box 33.97
- Mouse Mat + Dust Cover 9.98
- 'Get the Most out of Your Amiga' book 9.95
- Microswitch Turbo Joystick 9.99

TOTAL VALUE 400.82

WITH AMIGA/CDTV 139.99

SEPARATELY 169.99

DTP PACK

ALL AS ARTIST'S PACK PLUS: PAGESETTER II 400.82

TOTAL VALUE 499.81

WITH AMIGA/CDTV 189.99

SEPARATELY 219.99

OR: PRO PAGE 3

TOTAL VALUE 670.81

WITH AMIGA/CDTV 239.99

SEPARATELY 279.99

ACCESSORIES

- Blitz virus protector + backup device for any external drive 23.99
- AS7D Modulator 26.99
- AS00 Deluxe control centre 44.99
- Competition Pro Joystick 11.95
- CDTV Keyboard 39.99

FLOPPY DRIVES

- Zydec 3.5 external drive, daisychain + on/off 48.95
- Cumana CAX 354 3.5 external drive, beige 52.99
- CDTV external 3.5 drive, black 49.99
- PC 8808 with auto click + Blitz back up and virus protector 67.95
- PC 8808 as above, Cyclone compatible 78.99
- PC 8808 with Blitz + X Copy 98.99
- Dual drive as PC 8808 115.95

MONITORS/ACCESSORIES

- CBM 1084SDI monitor + leads 194.99
- Philips 8833 MK II monitor and leads 199.00
- Tilt + swivel stand for Philips 8833 12.99
- CBM 1960 High res monitor 379.99
- Philips 7CM Hi-res SVGA 78cm int. tilt & swivel 259.99
- Microway Flicker Fixer 79.99

HARD DRIVES/CD

- AS7D for 500+/600 265.00
- AS7D with 2.04 for 1.3 309.00
- AS00 GVP 530 52 MB HD + 68030 1MB exp. to BMB 655.99
- AS00 GVP 530 120 MB HD + 68030 1MB exp. to BMB 844.95
- AS00 GVP 530 240 MB HD + 68030 1MB exp. to BMB 1038.95
- AS90 20MB HD 269.99
- AS00 GVP II 52MB HD, exp to BMB 332.99
- AS00 GVP II 120MB HD, exp to BMB 435.99
- A1500/2000 GVP II controller, exp to BMB + Quantum 52MB HD 264.99
- A1500/2000 GVP II cont., exp to 8 MB + Quantum 120 MB HD 406.99
- Per extra 2MB fitted to above 62.99

OLD AMIGA TRADE-IN

The best trade-in allowance, extra for peripherals and accessories. Trade in your old machine for a brand new A600/A1500/2000/3000, CDTV or even a PC.

SCANNERS

- Naksha 400 dpi 32 greyscale + Datascan software 87.99
- Power Hand Scanner, 400 dpi, 64 greyscale, Powerscan software 97.99
- Power Colour Hand Scanner 235.95
- Sharp JX100 A6 Scanner + scanlab s/w, up to 18 bit 595.95
- Sharp JX 320 A4 Scanner + s/w, up to 24 bit 1729.00

EXPANSION/ACCELERATORS

- AS00 512K RAM exp + dods 19.90
- 1MB exp for AS00 49.99
- AS00 + 1MB exp 28.99
- AS1.3 or 2 ROM Shaver 39.90
- AS00 + switch 1MB exp 37.99
- GVP AS00 accel. - see Hard Drives 719.99
- G Force 68030 25MHZ/1MB 589.00
- Prog 68040 A1500/A3000 Phone 1.389.00
- G Force 68030 50MHZ/4MB 1389.00
- G Force 68030 25MHZ/1MB 589.00

1.3 TO PLUS UPGRADE

Chip fitting and board upgrade available, by our qualified engineers or DIY kit. PGA

EMULATION

- KCS Powerboard 188.99
- GVP 286 Emulator 216.99
- AT Once 178.99
- AT Bridgeboard for 1500 329.99
- XT Bridgeboard for 1500 99.00
- GVP 40/4 for 1500 945.99

DISCS

- 10 Blank DS/DD discs in box 6.99
- 50 Blank DS/DD discs 17.99

SOFTWARE

- Games - tel for list FROM 3.50
- ALL LATEST GAMES 30% OFF
- ALL SERIOUS TITLES BEST PRICES EG:
- Calligra 175.00
- Pro Page 3 107.00
- Imagine 187.00
- DP IV 54.00
- Pro Draw 2 79.99
- TV Paint 697.00

NO DEPOSIT CREDIT FACILITIES

Credit terms of 34.8% APR (variable) can be arranged for purchases over £150, subject to status. Competitive leasing schemes are also available for businesses, including sole traders and partnerships. Just telephone for written details and application form.

PRINTERS

- | ALONE | WITH STARTER PACK | ALONE | WITH STARTER PACK |
|---------------------------|-------------------|-------------------------------|-------------------|
| Citizen 120+D 108.99 | ADD £12.99 | Citizen Swift 24e 246.95 | ADD £12.99 |
| Star LC20 159.99 | | Citizen Swift 24e col 266.95 | |
| Star LC200 col 167.99 | | Star XB 24/200 col 347.99 | |
| Citizen Swift 9 168.99 | | Star XB 24/250 col 416.99 | |
| Star LC 24-20 178.99 | | HP Deskjet 325.99 | |
| Star LC 24-200 216.99 | | HP Deskjet col 490.99 | |
| Star LC 24-200 col 232.99 | | HP Pajetjet 526.95 | |
| Citizen 124D 176.99 | | B11 Dex Bubblejet post 276.95 | |
| Citizen 224 205.99 | | B1 300 338.99 | |
| Citizen 224+col 218.99 | | Star SJ 48 208.99 | |

STARTER PACK: 500 Sheets A4 or continuous paper, Amiga to printer lead & Universal Printer Stand

ORDERING:

TELESALES NO: (0727) 56005

Next day delivery for credit card orders placed before 4.30pm subject to availability. Alternatively send cheque, postal order, bankers draft or official order (P.L.C.s, Education and Government bodies only) to: Dept. AS, Hobbyte Computer Centre, 10 Market Place, St. Albans, Herts AL3 5EG. Please allow 7 working days for cheque clearance. Subject to availability, despatch is normally within 24 hours of receipt of cleared payment. Prices are correct at time of going to press, however, we are sometimes forced to change them, either up or down. Please check before ordering. Additional services and different packages may be offered in our showrooms, and prices may vary from Mail Order prices. Personal callers are asked to quote this ad to ensure Mail Order packages are offered.

DELIVERY CHARGES:

- Small consumables & software items
- Other items, except lasers
- Offshore and Highlands
- Saturday deliveries
- Arr next day
- UK MAINLAND (NOT HIGHLANDS)
- Despatched by post, please check charges when ordering
- Next day courier service, £10 per box
- Please enquire
- IN ADDITION WE OFFER THE FOLLOWING EXPRESS SERVICES:
- Normal rate plus £15 + VAT per box
- Normal rate plus £8 + VAT per box

Amiga prices, except where stated are inc. VAT. £.80/E

• PHILIPS APPOINTED DEALER • HP AUTHORISED DEALER • CITIZEN DEALER PLUS •





Roland's SC55 module was one of the first GS compatible units to arrive on the MIDI scene

Paul Overaa provides a no-nonsense introduction to the ideas behind the Roland GS standard and takes a look at some of the ultimate in sequencing 'cheats'

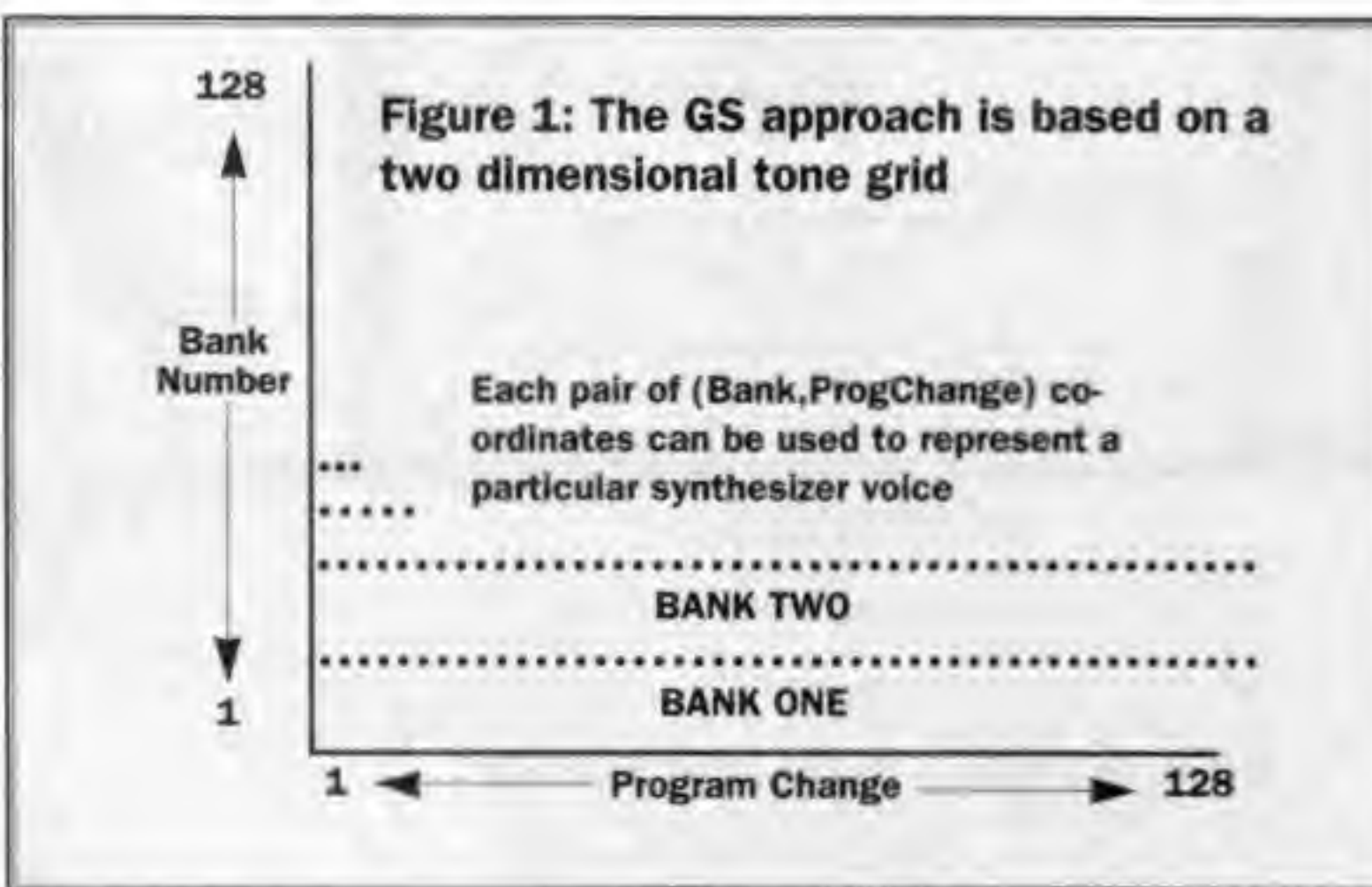
ROLAND RATIFICATION

Roland's GS standard is hitting the MIDI/Music sequencing arena in a big way. The initials GS are now being whispered by MIDI users all over the world. Why? It is because Roland's GS Standard looks set to solve the largest of the remaining MIDI portability problems. The best way to set the scene for some introductory GS explanations however is to look at the problems that it is going to solve.

The standardisation offered by MIDI itself opened up a wealth of musical possibilities but despite the fact that instruments from different manufacturers can be linked together very easily there was one area where a problem has remained... the relationship between the sounds that you hear on one particular synth or sound module (and the commands or voice-memory-slots that are related to them), and the equivalent characteristics on another manufacturer's unit.

SOUND FLEXIBILITY

The difficulty stems, as we've seen in earlier installments, from the fact that MIDI notes are timbreless, ie they're not specifically related to any particular sound or synthesizer voice. In many ways this is good because it offers a lot of flexibility - you can for instance record a melody with your synthesizer set up for a flute sound but if, before playing it back, you change the synthesizer's voice to say a piano sound then the melody you



recorded will play back sounding like a piano. Such changes can even be done by remote control by getting the sequencer to transmit program-change (patch-selection) messages.

Program change numbers, as originally envisaged by the committee that formulated the MIDI specification, had nothing directly to do with the various audible sounds that a synthesizer can make. In fact it was felt that, given the infinitely wide range of sounds that all synthesizers can produce plus the fact that many voice settings would be user-programmable anyway, it would not be feasible to implement any scheme which involved associating a given program change number with a particular type of sound.

Manufacturers were then rather

left to their own devices as far as the program-change <=> voice correspondence was concerned. The result, as most MIDI users will be only too painfully aware, is an annoying situation whereby a program change #70 message might select a flute voice on one synthesizer, yet the same message sent to another synthesizer might select an accordion sound.

As far as reconfiguring new pieces of equipment to suit existing patch/voice assignments, most synths and modules are reasonably flexible. So, for the lone MIDI user, working with his own data, these types of snags are not the end of the world. The difficulties however do increase when a user starts to use lots of sequences created by other people. It is simply not practical to keep changing your system voice-configurations each time you wish to use someone else's sequence data. The lack of drum-voice/drum-note standardisation (which was discussed in *Amiga Shopper* Issue 10) makes life equally awkward on the percussion front and even if you opt for what is perhaps the most useful approach, namely re-editing the sequence data so that it conforms to the voice/channel/drum-note arrangements that you have adopted, it can still be quite a job unless you are MIDI literate.

STANDARD NEEDS

These particular problem areas were identified some time ago with many companies realising that the lack of standardisation in this area was holding back the formation of a large 'pre-recorded sequenced music' market. Apart from the obvious things like 'music minus-one' type songs (ie backing sequences where you just add the melody), and MIDI versions of instrumental music, there are a number of other areas to be explored...

Imagine having song sequence data in a form that was so

Figure 2: Two recently defined MIDI controller messages

Status	Data-byte-1	Data-byte-2
Bn hex 0 hex		Bank Select MSB (most significant byte)
Bn hex 20 hex		Bank Select LSB

standardised that you'd be able to play it on your MIDI equipment in much the same way as you'd play a CD not having to worry about what equipment it was actually recorded on or what types of controller and program change messages were being used!

Such a 'non-musician' based MIDI market is potentially massive and it includes things like computer game music, CD and MIDI media formats, music, educational and business presentation software, and integrated audio-visual (AV) equipment. These types of applications mean big bucks and since it is the lack of a generally available voice/patch and drum note standard that is holding things back it's not surprising that a lot of effort is now going into developing workable solutions to the problems.

It is, in fact, exactly these issues that the Roland GS standard addresses. To start with, the standard specifies a Tone Map which defines the basic instrument tones along with assigned program change numbers. The program change ideas have however been expanded so that sounds (voices) can be defined on a two dimensional grid a bit like that shown in Figure 1...

THE GS TONE MAP

In actual fact the GS tone map is rather more complex than that shown in Figure 1. By defining or reserving the first 64 banks on the 'bank x program-change' grid the GS standard has allowed for 8192 map defined voices (64 banks of 128 sounds) and they've been arranged in a particularly useful way. Base level preset sounds, called 'Capital Tones' reside in program bank 1 with banks 2 to 8 being reserved for variations of those main bank 1 tones.

Banks 9, 17, 25, 33, 41, 49 and 57 are reserved for use as sub-capital tones (sounds which are related to the capital tone but different enough to be usefully described by some other name). Intermediate banks again offer variations for those tones so banks 10-16 for instance would contain variations of the bank 9 sounds. This arrangement has been chosen to allow GS based synths and sound modules to approximate any GS sounds that they do not implement. A module following this arrangement could, if asked to switch to a particular tone variation in a given bank which it did not have, could use the sub-capital tone as an approximate equivalent. If that bank wasn't implemented, the primary capital root tone could be used so at least the final voice chosen would be broadly similar to that designated by the original composer of the

sequence. One exception to this 'fallback' scheme concerns the program change area from 121-128... this has been reserved for sound effects. The other exception concerns banks 65-127 which have been designated as an area for user-defined sounds. Bank 128 has been reserved for Roland's MT-32 module factory set sounds.

There are incidentally two recently defined additional MIDI controller messages that allow for remote bank selection using controllers 0 and 32 (20 hex). The status byte is the standard controller Bn hex and the messages take this form... see figure 2 on the previous page.

The GS standard uses only the MSB part, ie controller 0, to ask a MIDI unit to select a particular sound bank. A tonal position on the two-dimensional GS grid can be remotely defined by sending a Bank Select message and a program change message.

As mentioned earlier the GS standard also defines drum-note correspondences. All GS equipment must support the standard set (or the minimum #35-#81 drum subset of it) but in addition to this provision has been made for alternative drum set support with individual kits selectable by program change commands.

If you take a look at Table 2, you will see that it provides the drum note assignment data for the standard set together with an orchestral set and a TR808 drum map for comparison...

In addition to this, the GS Standard recommends that channels 10 and 1-6 be regarded as the main channels with the suggested usage being as follows...

MIDI Channel	GS Part
10	Rhythm Drums
1	Piano
2	Bass
3	Chord
4	Melody
5	Sub-Chord
6	Sub-Melody

There is of course quite a bit more to the GS philosophy than I've covered in this introduction. The standard lays down a variety of rules concerning the polyphony of each sequence part and provides a number of other specialist controller-based MIDI messages that help eliminate the need for including manufacturer-specific SYSEX data within sequences. It also suggests the use of, and the format for, standardised count-in sequences and so on (most of this technical information is of interest only to GS developers).

Table 1: Roland SC55 GS Sound Module – Capital Instrument Tone Information Chart

Voice Number	Voice Name	Voice Number	Voice Name
(Piano)		(Lead)	
1	Acoustic Piano 1	65	Soprano Sax
2	Acoustic Piano 2	66	Alto Sax
3	Acoustic Piano 3	67	Tenor Sax
4	Honky Tonk Piano	68	Baritone Sax
5	Electric Piano 1	69	Oboe
6	Electric Piano 2	70	English Horn
7	Harpsichord	71	Bassoon
8	Clavinet	72	Clarinet
(Chromatic Percussion)		(Pipe)	
9	Celesta	73	Piccolo
10	Glockenspiel	74	Flute
11	Music Box	75	Recorder
12	Vibraphone	76	Pan Flute
13	Marimba	77	Bottle Blow
14	Xylophone	78	Shakuhachi
15	Tubular Bell	79	Whistle
16	Santur	80	Ocarina
(Organ)		(Synth Lead)	
17	Organ 1	81	Square Wave
18	Organ 2	82	Saw Wave
19	Organ 3	83	Synth Calliope
20	Church Organ 1	84	Chiffer Lead
21	Reed Organ	85	Charang
22	Accordion Fr	86	Solo Vox
23	Harmonica	87	5th Saw Wave
24	Bandneon	88	Bass & Lead
(Guitar)		(Synth Pad. Etc)	
25	Nylon String Gtr	89	Fantasia
26	Steel String Gtr	90	Warm Pad
27	Jazz Gtr	91	Polysynth
28	Clean Gtr	92	Space Voice
29	Muted Gtr	93	Bowed Glass
30	Overdrive Gtr	94	Metal Pro
31	Distortion Gtr	95	Halo Pad
32	Guitar Harmonics	96	Sweep Pad
(Bass)		(Synth SFX)	
33	Acoustic Bass	97	Ice Rain
34	Fingered Bass	98	Soundtrack
35	Picked Bass	99	Crystal
36	Fretless Bass	100	Atmosphere
37	Slap Bass 1	101	Brightness
38	Slap Bass 2	102	Goblin
39	Synth Bass 1	103	Echo Drops
40	Synth Bass 2	104	Star Theme
(Strings/Orchestra)		(Ethnic)	
41	Violin	105	Sitar
42	Viola	106	Banjo
43	Cello	107	Shamisen
44	ContraBass	108	Koto
45	Tremolo Strings	109	Kalimba
46	Pizzicato Strings	110	Bag Pipe
47	Harp	111	Fiddle
48	Timpani	112	Shanai
(Ensemble)		(Percussive)	
49	Strings	113	Tinkle Bell
50	Slow String	114	Agogo
51	Syn Strings 1	115	Steel Drums
52	Syn Strings 2	116	Woodblock
53	Choir Aahs	117	Talko
54	Voice Oohs	118	Melo Tom 1
55	Syn Vox	119	Synth Drum
56	Orchestra Hit	120	Reverse Cymbal
(Brass)		(SFX)	
57	Trumpet	121	Guitar Fret Noise
58	Trombone	122	Fl. Key Click
59	Tuba	123	Seashore
60	Muted Trumpet	124	Bird
61	French Horn	125	Telephone 1
62	Brass 1	126	Helicopter
63	Synth Brass 1	127	Applause
64	Synth Brass 2	128	Gun Shot

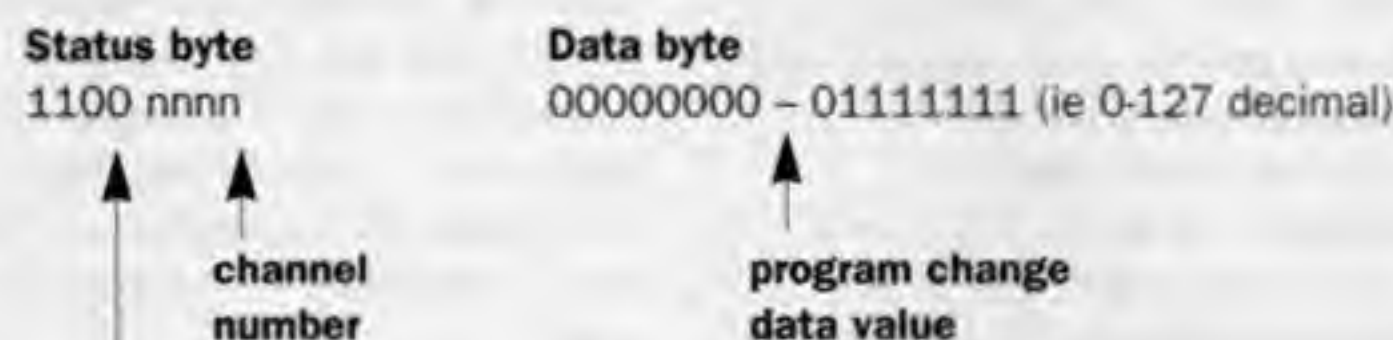
Table 2: Roland SC55 GS Sound Module – Drum Assignment Information Chart. (Note: Where table entries are blank the drum name is the same as the Standard Percussion Sound)

Prog # 1		# 26	# 49
STANDARD SET		TR808 SET	ORCHESTRA SET
Note Name	Tone Name	Tone Name	Tone Name
D#1 (27)	High Q		Clsd Hi Hat
E1 (28)	Slap		Pedal Hi Hat
F1 (29)	Scratch Push		Open Hi Hat
F#1 (30)	Scratch Pull		Ride Cymbal
G1 (31)	Sticks		
G#1 (32)	Square Click		
A1 (33)	Metronome Click		
A#1 (34)	Metronome Bell		
B1 (35)	Kick Drum 2		Concert B/D 2
C2 (36)	Kick Drum 1	Bass Drum	Concert B/D 1
C#2 (37)	Side Stick	Rim Shot	
D2 (38)	Snare Drum 1	Snare Drum	Concert S/D
D#2 (39)	Hand Clap		Castanets
E2 (40)	Snare Drum 2		Concert S/D
F2 (41)	Low Tom 2	Low Tom 2	Timpani F
F#2 (42)	Closed Hi-Hat	Clsd H/Hat	Timpani F#
G2 (43)	Low Tom 1	Low Tom 1	Timpani G
G#2 (44)	Pedal Hi-Hat	Clsd H/Hat	Timpani G#
A2 (45)	Mid Tom 2	Mid Tom 2	Timpani A
A#2 (46)	Open Hi-Hat	Open H/Hat	Timpani A#
B2 (47)	Mid Tom 1	Mid Tom 1	Timpani B
C3 (48)	High Tom 2	Hi Tom 2	Timpani c
C#3 (49)	Crash Cymbal 1	Cymbal	Timpani c#
D3 (50)	High Tom 1	Hi Tom 1	Timpani d
D#3 (51)	Ride Cymbal 1		Timpani d#
E3 (52)	China Cymbal		Timpani e
F3 (53)	Ride (on Bell)		Timpani f
F#3 (54)	Tambourine		
G3 (55)	Splash Cymbal		
G#3 (56)	Cowbell	Cowbell	
A3 (57)	Crash Cymbal 2		Concert Cymbal 2
A#3 (58)	Vibraslap		
B3 (59)	Ride Cymbal 2		Concert Cymbal 1
C4 (60)	High Bongo		
C#4 (61)	Low Bongo		
D4 (62)	Mute High Conga	High Conga	
D#4 (63)	Open High Conga	Mid Conga	
E4 (64)	Low Conga	Low Conga	
F4 (65)	High Timbale		
F#4 (66)	Low Timbale		
G4 (67)	High Agogo		
G#4 (68)	Low Agogo		
A4 (69)	Cabasa		
A#4 (70)	Maracas	Maracas	
B4 (71)	Short Whistle		
C5 (72)	Long Whistle		
C#5 (73)	Short Quiro		
D5 (74)	Long Guiro		
D#5 (75)	Claves	Claves	
E5 (76)	High Wood Block		
F5 (77)	Low Wood Block		
F#5 (78)	Mute Cuica		
G5 (79)	Open Cuica		
G#5 (80)	Mute Triangle		
A5 (81)	Open Triangle		
A#5 (82)	Shaker		
B5 (83)	Jingle Bell		
C6 (84)	Bell Tree		
C#6 (85)	Castanets		
D6 (86)	Mute Surdo		
D#6 (87)	Open Surdo		
E6 (88)			Applause

PROGRAM CHANGE MESSAGES – A brief reminder

A program change command is a MIDI message which enables a synthesizer's current voice to be changed by remote control. A sequencer, by sending such messages, can therefore select suitable synthesizer voices without any manual changes needing to be made to the synthesizer controls. As likely as not your synthesizer will also transmit these messages whenever different voices are selected from the instrument's control panel.

The program message as defined by the MIDI standard is a two-byte message which takes this form...



This part of the status byte indicates that the message is a program change

The status byte identifies the message type and a MIDI channel. The trailing data byte gives a value from 0 to 127 decimal which indicates a program change value. These messages then allow the selection of one of 128 possible 'programs'. For instance, the two bytes C0 hex (decimal 192) followed by 0 hex (decimal 0) tells any unit set to MIDI channel 1 to change its program 0 voice arrangement setting.

Some synthesizers have a fixed program-change/voice relationship so that sending a program-change 1 message will always select a particular voice. Other units employ more flexible arrangements, often based on user-definable internally memorised tables. The benefit with this latter arrangement is that you can not only choose which voice a particular program change command will select, but you may also edit and change such tables as and when it becomes useful to do so.

MOVING TOWARDS A GOAL

The idea behind GS is that it will eliminate the need to edit sequence data to get it to sound right on different equipment.

The first piece of Roland equipment with the capability to support the GS standard was the SC55 sound module, although since then the list has grown to include CM300 and CM500 sound modules, a SCC1 PC sound card, the JV30 synthesizer the E70, E30 and E15 synthesizers and a number of other units.

OFF THE PEG MIDI

The GS standard is also catching on fast with a great many companies who are in the business of creating ready-made MIDI file song arrangements.

This brings me to the point that I should perhaps have mentioned right at the start of my musical GS

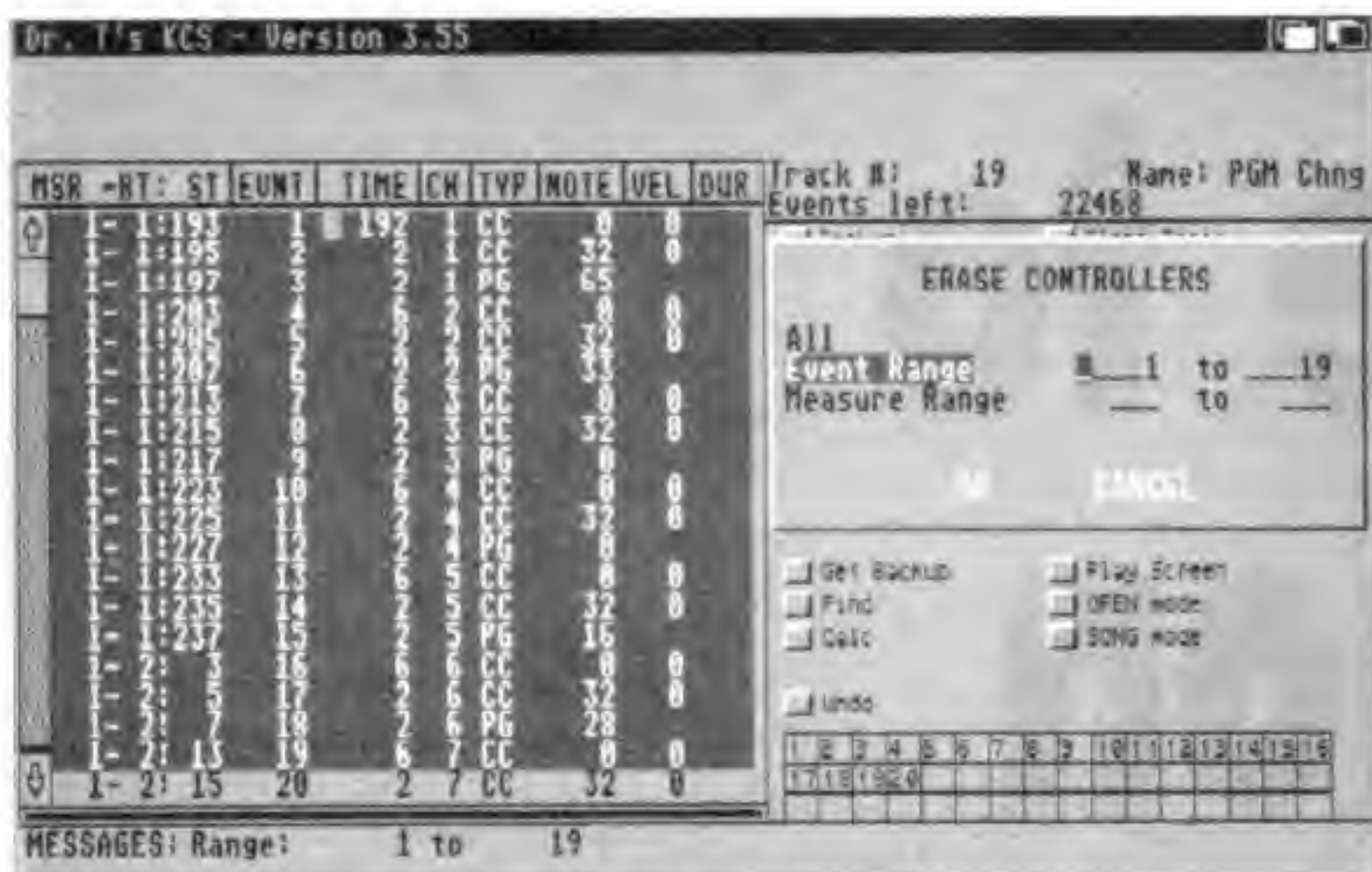
wanderings – the GS philosophy will only work if the MIDI equipment has been built with the GS standard in mind.

At the moment most potential users of 'ready made' song sequences will not be using GS equipment but luckily this doesn't matter because, with a little inside info, non-GS users can convert sequences very easily.

All in all, editing GS sequence data to make it suitable for your MIDI set-up is no different from editing some other user's data. This, of course, is one of the reasons I've dealt with the GS voice and drum-map issues in the first place. Another reason is that on the following page I'm rounding off my recent notes about creating sequences the easy way by looking at the easiest possible approach... buying pre-written song arrangements (and guess what standard comes into the picture).

** ACKNOWLEDGMENTS **

Tables 1 and 2 are based on data originally provided by the Roland Corporation for use with the GS compatible Roland SC55 Sound Module. They have been reproduced by kind permission of 'Hands On' Midi Software Ltd.



Track isolated voice selection data makes the Hands On sequences particularly easy to edit

OFF THE SHELF

Sequences

For some musicians, buying ready-made arrangements is the ultimate 'cheat', as far as sequenced music is concerned. But there is sometimes a good case for taking the easy way out. Here are some tips on how to get the best from some of the current offerings.

Over the last few issues I've talked about ways in which sequencer users can make life easier for themselves as far as song creation is concerned. We've seen how programs like *SuperJAM* can be used to build presentable arrangements and how pre-recorded fragments, such as are available with *Gajits Hit Kit*, can be used as building blocks. In passing I mentioned the ultimate option, namely buying ready-made, MIDI File arrangements for the songs you'd like to play. The benefits of this approach are reasonably obvious... You don't actually have to play the songs to use them and the arrangements will almost certainly be far better than you could create yourself. And, you don't have to spend time creating them! Despite these benefits it is only recently that this particular market has started to take off and one of the reasons has been that, previously, most users have had to carry out supplier-specific editing to get pre-arranged MIDI file material to work with their MIDI set ups. Of late this situation has improved no end, mainly because of the acceptance of Roland's GS standard. I've dealt with the nuts and bolts issues of GS elsewhere in the mag so if this is the

first time that you've heard the term it might be worth reading the GS material first.

As far as using ready-made MIDI file sequences is concerned, one problem is getting the material in the right disk format. Nowadays a number of companies offer a whole range of material on Amiga format disks but to be honest this, for the Amiga user, is neither here nor there – utilities such as *Cross-Dos*, which can read and write PC and Atari ST format disks, have made the physical copying of files from PC/ST disks to Amiga disks simplicity itself.

CLOSE TO THE EDIT

Another problem, which the Roland GS standard attempts to solve, is the need for sequence editing. For the purposes of this article I'm going to be assuming that most Amiga musicians are not using GS orientated synths and modules and this means that some editing of GS sequences will be necessary. The good news is that instead of the previous situation, whereby you didn't really know what type of editing would be needed until you saw the sequence, with GS based material you will at least have a good idea of what will need to be done – the GS standard therefore, to some extent, helps non-GS equipment users as well!

By way of example I've picked two companies that specialise in producing ready-made song arrangements in MIDI file form. Here are some review-style notes coupled with a few technical points of interest...

HANDS ON MIDI SOFTWARE

Hands On offers a range of GG (chart) and MasterClass (classical) sequences. The current GIG library alone has around 250 titles including chart hits, big band and jazz material, 60s music, TV and film themes, country hits and a host of other goodies. I've used quite a lot of 'Hands On' material and there's no doubt that a lot of effort has been put into these arrangements – they really are very good. The effort has clearly paid off because Hands On was chosen to supply Roland itself with sequence data for worldwide distribution. incidentally, it was also Hands On which was chosen by the Education department of Commodore UK to supply *Music-X* based Amiga song versions.

The Hands On disk documentation is also good. As well as the MIDI file data itself, you'll get introductory series notes, information about relevant sequencing techniques and their relationship to overall GIG sequence arrangements, tone map and drum map assignment data, and details of the voices/drum-maps in use (these are GS based). The 'Standard MIDI file' of the Drum and Percussion tracks will also be provided with the drums separated onto their own individual tracks (eg Track 1 = Kick Drum, Track 2 = Snare, Track 3 = Closed Hi Hat etc).

FACTS ON FILES

Each song file will have an associated info file and these contain tempo data, time signatures and a complete breakdown of the data contained in each track. Playback channels, track names and a rough guide to when each voice sounds in relationship to sequencer bar numbers will also be included. If the song has words then lyric files will also be provided together with files that contain lyric sheet data coupled with bar indicator numbers to help synchronization.

Hands On, in line with GS guidelines, isolates its voice selection data into a 'program change' track. It's here that you'll also find the GS bank-select controller #0 messages and although these should be ignored by non-GS equipment you might feel happier erasing them (non-GS users will have to edit the program change commands on this track, so that voices related to the GS specified ones are selected. If you are not using a Roland compatible drum unit, you will need to edit the drum map assignments to suit your equipment.

STAGE ONE COMPUTERS

Stage One is another company which has built up a rock-solid reputation

for supplying excellently programmed arrangements. Whether it's rock, country music, sixties songs, or up-to-date chart material you're after, you'll find something in its catalogue lists to 'whet your musical appetite'. If, incidentally, you are interested in taking the easy way out as far as drum programming is concerned, you might like to know that the Stage One volume 1 drum library contains over 700 drum patterns and volume 2 contains another 600+ patterns!

MAPS AND TRACKS

The Stage One material that I've seen to date is not GS standard as such but it is biased towards Roland-oriented standards. Roland drum maps are used and the types of sequence translations that most MIDI users may need to do are similar to those mentioned previously, although you may find with some arrangements that you have to remove a setting up sequence included for the benefit of Roland D10 and D110 users.

Although less disk documentation is provided with the Stage One material you will still get printed track sheets for many of the arrangements. Stage One offers a number of user group schemes and the benefit here is that not only can you get additional MIDI help but user-group discounts are offered on song and other MIDI file library material. **AS**

BUYING ADVICE

Hands On Midi Software Ltd
Any four chart hits (or two classical works) will cost **£22.95 (plus £1.50 p&p)**. A demo disk or tape is available for **£5.50 (plus p&p)** and this is refundable against subsequent purchases. A range of formats (including Amiga disks) and specialised MIDI services are also available – for further details contact Hands On Midi Software ☎ 0705-221161.

Stage One Computers Ltd
Individual songs cost **£7 inclusive of VAT and p&p**. With four or more compositions the price falls to **£5.50 each** and if you are a Stage One User Group member that price becomes **£4.50**. Demo packs, drum libraries and a range of formats are provided but at the moment Amiga users are not directly catered for so you'll need to get ST format disks and use a program like *CrossDOS* to read them. Stage One also offers a range of specialist MIDI services – for details ☎ 0256 50259.

then LEASTSOFAR is instead set to the value of this score.

After all of the possible moves have been tried (and subsequently erased), then LEASTSOFAR contains a score corresponding to the move which forced the opponent into making the worst move for him or her and consequently the best move as far as the player in question is concerned.

THE FINAL COUNTDOWN

This final score must be reversed before it is returned as a result of the subroutine, since it represents the lowest score for the opponent (possibly negative) and must therefore represent the highest score for the player in question (which must obviously be positive). To this end the result returned is equal to the negative of the lowest score.

You've probably noticed that the procedure MIMAX doesn't actually remember any particular move, merely the lowest score from all of the possible moves. This is because another procedure is used to keep track of the best move so far, and MIMAX is only called in order to evaluate each of the moves that this other procedure chooses.

This other procedure, called BESTMOVE, is in fact very much like MIMAX. It is the thing that initiates the whole recursive process.

The main difference is that it must keep track of the best move made. To do this it needs to make use of two extra variables, XBEST and YBEST. These are the co-ordinates on the board of the best move found so far in. They are shared between the main program and the BESTMOVE procedure since this is the easiest way for BESTMOVE to modify them.

The procedure BESTMOVE is as follows:

```

Procedure BESTMOVE[TURN]
Shared
  BOARD(), XBEST, YBEST, EMPTY
  GAMEOVER
  If Param=True
    XBEST=0 : YBEST=0
  Else
    LEASTSOFAR=255
    For X=1 To 3
      For Y=1 To 3
        If BOARD(X,Y)=EMPTY
          BOARD(X,Y)=TURN
          MIMAX[-TURN]
          BOARD(X,Y)=EMPTY
          If Param<LEASTSOFAR
            LEASTSOFAR=Param
            XBEST=X
            YBEST=Y
        End If
      End If
    Next Y
  Next X
  End If
End Proc

```

Just as with MIMAX, the first thing the procedure does is to check whether the game is over. If it is, then there is no point in BESTMOVE making another move, so it simply sets XMOVE and YMOVE to zero - dummy values which inform the calling program that no move has been chosen.



CHECKING OUT

If the game isn't over, then, as with MIMAX, the procedure goes through each of the possible moves in turn and checks them out. Notice how, after tentatively making each move, MIMAX is called to see how the other player might best respond (done by passing the negative of the variable TURN as a parameter).

Again, the lowest score is the one that is accepted, since this means the opponent has been forced to make a poor move (note that we are not choosing a poor move for the player, rather the move for the computer which forces the player, even though he or she is attempting to make the best move possible, to make a relatively poor move).

When the current score is compared against the variable LEASTSOFAR, if it is found to be lower not only is LEASTSOFAR updated to its value, but XBEST and YBEST are assigned the co-ordinates of the current move, thus recording that particular move.

So, once all of the moves have been made, XBEST and YBEST contain the co-ordinates of the best possible move. There is no need for BESTMOVE to return a value - the calling program knows that BESTMOVE has decided on the best possible move to make, so all it is interested in are the co-ordinates of that move, which are obtained from the shared variables XBEST and YBEST.

The piece of code that initiates all of this and acts on the results is shown below:

```

Repeat
  PMOVE
  DISPLAY
  GAMEOVER
  If Param=False
    XBEST=0
    YBEST=0
    BESTMOVE ↓ [NOUGHT]
  If XBEST<>0

```

```

  BOARD ↓
  (XBEST, ↓
  YBEST)= ↓
  NOUGHT
  DISPLAY
  End If
  End If
  FULL
  A=Param
  WON[NOUGHT]
  B=Param
  WON[CROSS]
  C=Param
  Until ↓
  (A=True)
  or (B=True)
  or (C=True)

```

So as you can see, the main loop of the

game repeats, first getting a move from the player and then getting a move for the computer with BESTMOVE, until such a time as the game is over.

RUNNING IN CIRCLES

The problem with recursive routines is that they are initially difficult to follow.

Whereas with a non-recursive procedure you can start reading at the top of the listing and follow it through to the bottom, just as the computer would do if executing it, this isn't really practical with a recursive routine because of the number of times it calls itself. You very quickly lose your way and get confused.

It's important instead to think of a recursive routine as something which operates on a set of things passed to it and returns a value depending on the result of those operations. In other words, think of it in a more general sense, don't be concerned with each individual statement.

If, in the example above of MIMAX, there were only one possible position left to move into, then you could quite happily work through the program line by line.

You could see that this move would be taken, and that the procedure would then be called again but with the opponent in mind. In this case, the call to GAMEOVER would reveal that the game was indeed

over, and the call to STATIC would give a score for the end position.

POSITIVE MOVES

Suppose that the computer had made a move which gave it a row of three. Then when MIMAX was called again, with the human player as its subject, STATIC would return a value of -1, since the human had lost. The recursion would then finish and further execution in the incarnation of MIMAX which called the other would continue. In this case, because there were no other possible moves the one with the value of -1 would be chosen. At the end of the procedure, a value of +1, not -1, would be returned, since a negative number for the human player is a good, and therefore a positive, thing for the computer.

But if there were several possible moves to be made on the board, you

"...a negative number for the human... is a good and therefore positive thing..."

can see how much more complicated things could get (go on, try it!). Each call to MIMAX would result in several more calls being made to MIMAX, multiplying exponentially depending on the number of moves available.

Suffice instead to say that if there are no possible moves to be made, then MIMAX will return a value related to who has already won. Similarly, if only one move is possible then MIMAX will choose this move and give a score to it.

In the case of two moves being available, then MIMAX will choose the move most detrimental to the opponent, as you can also check by working through it. Having satisfied yourself that this is the case, you can then be sure that the procedure will work in more general circumstances, for any number of possible moves up to and including the maximum nine.

COMING NEXT MONTH

Anyway, that's enough recursion for one month. Next month I'll tidy up a couple of loose ends and give you the listing in full, along with a couple of improvements and modifications. Until then, happy hacking. **AS**

THANKS...

Many thanks to Mark Harman and Sebastian Danicec of PNL and mlaskey@CIX for their aid in debugging this program.

Evesham Micros ● **TELESALES AND SHOWROOM SUNDAY NOW OPENING FROM 10AM - 4PM**

ZY-FI Amplified Stereo Speakers

REALISE THE TRUE SOUND POTENTIAL OF YOUR AMIGA WITH THIS PAIR OF FULL RANGE SPEAKERS!

Your Amiga produces fine quality hi-fi stereo sound. Enjoy quality stereo sound reproduction to the full with this new design twin speaker system! Incorporates a built-in amplifier with separate adjustable volume controls for each speaker unit. Runs from PSU (supplied) or from batteries (not included).

Speaker Dimensions: 160x95x105mm (HxWxD)

ONLY £39.95

TOP VALUE 400dpi HANDY SCANNER

QUALITY SCANNING - AT THE RIGHT PRICE!

This Image Scanner package combines top quality hardware with the latest version of the distinctively powerful DAATASCAN PROFESSIONAL VERSION 2 software, now giving TRUE GREYSCALE CAPABILITY.

At a genuine 400dpi scanning resolution, this new scanner produces truly superb quality scans. Has a full 105mm scanning width, variable brightness control and 100 / 200 / 300 / 400dpi resolution. Daatascan Professional Version 2 scanning and editing software allows real-time scanning in either line art or in up to 64 simulated grey scales. Provides powerful editing features and excellent compatibility with most DTP and Paint Packages. eg. Deluxe Paint 4, Touch-Up.

ONLY £99.99

TRUEMOUSE

WE GUARANTEE that this is the smoothest, most responsive and accurate replacement mouse you can buy for the Amiga. Excellent performance, now with a 300dpi resolution. Amazing new price!

£14.99 SATISFACTION GUARANTEED

GOLDEN IMAGE OPTICAL MOUSE Amiga/ST compatible - excellent travel+accuracy assured. **NEW LOW PRICE!.. £29.00**

ROCGEN GENLOCK MK.II

OFFERING EXCEPTIONAL VALUE FOR MONEY, this fully compatible GENLOCK adaptor offers levels of quality, function and sophistication not normally available in this price category. Special features include the ability to record graphics & animations on video recorders and overlay graphic and text onto video. Capable of smooth and stable fading and overlaying effects with special tuning knob.

ONLY £79.99

ROCGEN PLUS

Compatible to any Amiga or Commodore CDTV, this NEW Genlock Adapter provides Advanced Special Effects and Performance Features without sacrificing user-friendliness!

New Special Features include: Dual Dissolve control knobs providing freely adjustable degrees of overlay or invert (keyhole) effects; Auto Video pass-thru; extra Video throughput for separate line monitoring; RGB pass-thru for real-time editing of Amiga graphics; plus Key-In port for use with an external keying device.

ONLY £119.99

PHILIPS 15" TV/MONITOR

With its dedicated monitor input, this model combines the advantages of a high quality medium resolution colour monitor with the convenience of remote control Teletext TV - at an excellent low price! Features dark glass screen for improved contrast, plus full range 3-way speaker sound output.

£269.00 Including VAT, delivery & cable

Philips CM8833 Mk.II Monitor (Genuine UK version), includes cable and 1 Year on-site maintenance. **£219.00**

A590 ADD-ON HARD DRIVES

A590 OWNERS! Expand your hard disk storage further with one of our add-on, externally cased SCSI Hard Drives, with 25ms autolocking NEC mechanisms and separate power supply. Plugs into the socket provided on the rear of the A590 unit.

External 40Mb SCSI Drive cased with PSU to directly add-on to the Commodore A590 **£249.00**

External 100Mb SCSI Drive cased with PSU **£399.00**

NEW FROM COMMODORE! AMIGA 600



• Built-in TV Modulator • Built-in IDE Hard Disk Controller
• Kickstart 2 • 1Mb ChipRAM • Accepts Memory Cards

INCLUDES 12 MONTHS ON-SITE WARRANTY, 'DELUXE PAINT' & EXCITING GAME TITLE!

ONLY £349.99

2MB RAM/CLOCK VERSION £389.99

CBM 20MB HARD DISK VERSION ALSO AVAILABLE

£449.99 including 1 Year On-site Warranty

2MB RAM/CLOCK VERSION £489.99

N.B. Prices do not include Free Software

Evesham Micros SPECIAL HARD DISK UPGRADED MODELS

We are now able to supply Amiga A600's with larger hard disks. We take a standard single drive A600 and install a high quality 2 1/2" IDE hard drive.

A600 with 40Mb Hard Disk **£479.99**
A600 with 80Mb Hard Disk **£579.99**
A600 with 120Mb Hard Disk **£699.99**

All models available with 2Mb RAM - Please add £40.00

— Please note that the hard disk installation is not covered by on-site warranty —

NEW FROM Evesham Micros A600 1MB RAM/CLOCK UPGRADE

UPGRADE YOUR NEW A600 TO 2Mb WITH THIS SIMPLE PLUG-IN MEMORY UPGRADE!

- ★ Simply Plugs into the A600's trapdoor expansion area
- ★ Increases total RAM capacity of A600 to 2Mb 'ChipRAM'
- ★ RAM Enable / Disable Switch
- ★ Battery-Backed Real-Time Clock

ONLY £49.99



NEW! A500 ROM SWITCHER

SWITCHING BETWEEN VERSIONS OF KICKSTART ON YOUR A500 IS EASY WITH OUR NEW ROM SWITCHER!

You can improve software compatibility on your A500 Plus! By fitting our ROM switcher, you can alternate between the Kickstart 2 already resident and another version of Kickstart ROM chip, giving you the freedom of choice. Fitting is very simple indeed, and requires no soldering or special technical knowledge. Fitting allows two methods of switching, either by keyboard reset, or by an external toggle switch. N.B. Kickstart ROM not supplied. A500 Revision 5A boards will require circuit modification.

ONLY £24.95

Kickstart 1.3 ROM supplied separately **only £29.95**
Kickstart 2.0 ROM supplied separately **only £39.95**
A500 Revision 5A PCB Circuit Modification Service **£29.95**

TRACKBALL



High performance trackball, directly compatible to any Amiga or Atari ST. Plugs into mouse or joystick port. Super-smooth and accurate - you probably won't want to use a mouse again after using this Trackball! Full one-handed control. Top quality opto-mechanical design, giving high speed and accuracy every time. No driver software needed!

ONLY £29.95

REPLACEMENT A500 PSU



Genuine Commodore Amiga A500 type replacement Power Supply Unit. Good quality 'switch mode' type. Super low price!

ONLY £39.95

Amiga 500 Service Exchange Power Supply **£24.95**

STEREO SOUND SAMPLER

Offering full compatibility with almost any Amiga audio digitiser package, our Sound Sampler features excellent circuitry, yielding professional results. The main A/D converter gives a digitising resolution of up to 50KHz, with a fast slew rate. Two phono sockets are provided for stereo line input, plus an option for microphone. Adjustable gain is achieved with built-in control knob. Complete with public domain disk containing sound sampling applications / utilities.

ONLY £29.95

MIDI INTERFACE

Our fully compatible, high quality MIDI interface connects directly with the Amiga serial port and provides IN, OUT & THRU ports for good flexibility. Features LED indicators on each port for diagnostic purposes. Superb compact design!

ONLY £19.95

VIRUS PROTECTOR

Our compact Virus Protector fits easily to the Port of the last disk drive in your Amiga system, protecting all internal and external drives from boot block viruses. Incorporates a switch to enable or disable the protection facility.

ONLY £6.95

VIDI-12 Amiga video digitiser package inc. VIDI-Chrome **£110.00**
VIDI Complete Colour Solution Kit **£149.95**
VIDI-RGB colour frame generation kit from B&W images **£4.95**
Amiga 500 Dust Cover **£4.95**

PRINTERS

Prices Include VAT, Delivery and Connection Cable

Gold Star REGISTERED DEALER

EVESHAM MICROS STAR PRINTERS INCLUDE 12 MONTHS ON-SITE WARRANTY

STAR LC20 9-Pin Printer

SUCCESSOR TO THE BEST SELLING LC-10, WITH MANY FEATURES AND FAST OUTPUT



Providing superlative paper handling, four excellent NLQ fonts and a new super-fast print speed of 180cps in draft and 44 cps in NLQ, the LC20 appropriately supersedes the phenomenally successful LC10!

ONLY £129.99

Star LC24-200 COLOUR Printer

COMBINES HIGH QUALITY 24-PIN COLOUR PRINTING WITH EXCELLENT VERSATILITY - AT A BUDGET PRICE!

- 24-Pin 7-Colour Printer
- 200cps draft / 67cps LQ
- 222cps High speed draft facility
- 30K Buffer expandable to 62K
- Swivel Selectable Push or Pull Tractor, with bottom feed capability
- Advanced Paper Parking
- Electronic Dip Switches
- 10 Resident LQ fonts
- Includes Colour Ribbon

ONLY £269.99

Star LC 200 9-Pin Colour, 4 fonts, 180/45cps **£199.99**
Star LC 24-20 24-Pin, 4 fonts, 180/60cps **£209.99**
Automatic Sheet Feeder for 10" LC printers (pls state model) **£64.95**
Star XB24-200 COLOUR 24-pin, 80 col. power printer **£369.00**
Star XB24-250 132 column version of XB24-200 **£439.99**

Citizen Swift-24E including COLOUR kit **£209.99**
Olivetti JP-150 Inkjet good quality - exceptional value **£249.99**
Olivetti JP-350 Inkjet excellent high speed 300dpi printer **£349.99**
Hewlett-Packard Deskjet 500 **£359.00**
Hewlett-Packard Deskjet 500C (Colour) **£529.00**
Citizen Project Inkjet Printer **£399.99**
Epson LX400 budget 10" carriage 9-pin 180/25cps **£139.00**
Epson LQ100 24-pin 180/60cps, 8K buffer **£205.00**
Panasonic KXP1124i updated 24-pin model 300/100cps **£279.00**
Panasonic KXP1123 good value 24-pin model **£215.00**

ACTION

Sprite animation, software scrolling routines and AMOS answers – all this and more... Jason Holborn's the man with his finger on the pulse...

Having to write all the code that appears in the AMOS column is a difficult task – even for an AMOS addict such as myself, so I thought it was about time I dragged in a little help from the experts. And who better than the people who made AMOS possible, Europress Software. Thanks to Richard Vanner at Europress, every month we'll be featuring a snippet of code written by the talented programmers at Europress Software. Over the next few pages, we'll also be learning how to get those sprites moving in your games programs, looking at software scrolling in our AMOS for beginners section as well as solving some of your queries.

The aim of the new Europress code section will be to get the lads at Europress to write a bit of code which either solves a problem that many of you may have or code which shows a new technique that can be achieved within AMOS. Of course this sort of thing is nothing new to the AMOS column (after all we've been solving your AMOS problems since issue 1), but what makes it special is that the code which we print will be written by the



If you're looking for a good AMOS produced game, look no further than *RattleSnake* on AMOS PD disk 385

programmers who made AMOS possible.

If you're particularly stumped and really need a bit of code written, write to me and I'll pass your request on to the lads at Europress. Hopefully, if they can drag themselves away from the local pub (only joking!), they'll get on the job and the results of their efforts will be

printed here within *Amiga Shopper*. Obviously we haven't got a lot of space to play with, so don't expect complete games and utilities. If you want that sort of thing, keep your eyes on the Listings pages of *Amiga Shopper*.

The routines you request must be fairly short and straight to the point. It must therefore be possible

for Europress' programmers to solve the problem in no more than 25 lines of code. If they don't think it's possible to solve it with 25 lines of code, we won't have the space available.

AMOS PD LATEST

If you want to see what AMOS is capable of in the hands of an

experienced coder, check out these latest disks from the official AMOS PD library (0792 588156).

The AMOS PD library is an absolute Aladdin's cave full of useful AMOS related utilities, demos and games. Here's a run-down of the latest disks to land on my desk.

• APD398

Cubic Demo

Shockwave's latest product is an audio visual feast which really

demonstrates the power of AMOS. Weird scrolls and copper tricks are only a couple of the marvels that will assault your senses.

• APD385

Games

Games aren't usually the domain of *Amiga Shopper*, but why not check out this disk? It's always worth checking out a few games especially if you're in the business of designing your own games. It contains three games – *Rattlesnake* (a two player helicopter duelling game), *Sky Chaser* (a rather naff maze chase game) and *Mazeman* (possibly the best PD PacMan game yet).

• APD394

Amos Programs

This disk contains no fewer than nineteen different AMOS programs in source format. Load them into AMOS, run them and learn from them. Definitely a recommended purchase for AMOS beginners.

• APD384

Wots-Its-Name

A word guessing game based on the TV quiz show *20 Seconds*. Simple, but very entertaining.

• APD378

Structured Insanity 2

Fanatic is generally known as the king of AMOS coding and this latest demo certainly does nothing to tarnish that reputation. Recommended.

EUROPRESS LASER ROUTINE

This month's rousing routine has been written by Darren 'Barney' Skirvin, a very talented chap who many of you may already have spoken to. Darren works on the AMOS help-line at Europress, sorting out your AMOS problems and suggesting solutions.

The program generates a sort of psychedelic strobing laser effect like those you see on *Top Of the Pops* and at Rave parties (or so I'm told!). The code serves as a nice demonstration of how to draw lines and generate random numbers.

Next month the Europress lads will be writing a useful section of code that will enable you to add inertia to sprites. This month though, have a play with the code below. Type it in and enjoy.

• SMALL LASER DEMO



This month's Europress special will allow you to add psychedelic laser effects to your programs

• By Darren 'Barney' Skirvin
• at Europress Software

Curs Off : Hide

Cls 0

Do

PV=Rnd(150)

PH=Rnd(300)+10

V=Rnd(20)+15

Colour 2,Rnd(10000)

,

• ** MAKE LASERS GO DOWN

,

For P=10 To 240 Step 10

For X=10 To 319 Step V

Ink 2

Draw PH,PV To X,P

Next X

,

• ** THIS BLANKS THE LASER

OUT

,

For X=10 To 319 Step V

Ink 0

Draw PH,PV To X,P

Next X : Next P

,

• ** MAKE LASERS COME BACK UP

,

For P=240 To 1 Step -10

For X=10 To 319 Step V

Ink 2 : Draw PH,PV To X,P

Next X

,

• ** BLANKS THE LASERS OUT

,

For X=10 To 319 Step V

Ink 0 : Draw PH,PV To X,P

Next X : Next P

Loop

GAMES PROGRAMMING

Sprite animation

It's obvious from the many letters that I receive every month that animation is one aspect of AMOS programming which confuses many would-be games programmers. Unfortunately though, this is not a subject that you can afford to ignore. Just check out any one of the thousands of arcade games which are available for the Amiga and you'll notice that animation plays an important role in their visual attraction.

Even fairly basic games boast animation in one form or another – whether it's an animated background

the second, and arguably more powerful, uses AMOS' AMAL animation language (Easy AMOS programmers will have to use the first technique because Easy AMOS doesn't offer AMAL).

A REFRESHING ANIMATION

The first method of animating sprites shown in Listing 1 uses the time honoured technique which has been used on every micro since the ZX81 (OK, possibly a slight exaggeration there, but what do you expect from a journalist?). This method of animating sprites does not use any form of fancy interrupts or animation language, instead the sprites are updated within the main game loop, the section of code which forms the heart of every game.

All games are tied in very closely to the refresh speed of the computer that they are running on. Every time the computer re-draws the screen once, the main game loop is performed (in theory). Obviously the more complex your game, the longer it takes to perform the main game

LISTING 1

```

' *** Standard Animation -
Demo ***
'
Screen Open -
0,320,200,16,Lowres
Cls 0 : Flash Off : -
Double Buffer
'
Load "SOURCE:Ball.ABK"
Get Sprite Palette
Bob 1,0,100,1
FRAMECOUNT=1
DELAY=0
Do
Add COUNT,1,0 To 320
Bob 1,COUNT,100,FRAMECOUNT
Add DELAY,1,1 To 4
If DELAY=4
Add FRAMECOUNT,1,1 To 8
End If
Wait Vbl
Loop
Wait Key

```

or a cycled series of frames that brings life to the main sprite, incorporating animation is very important indeed.

AMOS provides a plethora of commands which can be used to animate sprites or sections of the screen, but this month we're going to be concentrating on breathing life into sprites and bobs. This can be achieved using basically two different methods...

The first technique is exactly the same as the technique used by professional games programmers but

LISTING 2

```

' *** AMAL Animation Demo -
***
'
A$=" Anim
0,(1,4)(2,4)(3,4)(4,4)"
A$=A$+" -
(5,4)(6,4)(7,4)(8,4)"
'
Screen Open -
0,320,200,16,Lowres
Cls 0 : Flash Off : -
Double Buffer
'
Load "SOURCE:Ball.ABK"
Get Sprite Palette
Bob 1,0,100,1
Channel 1 To Bob 1
Amal 1,A$
Amal On
Do
Add COUNT,1,0 To 320
Bob 1,COUNT,100,
Wait Vbl
Loop
Wait Key

```

AMOS ANSWERS

If the going gets tough and your AMOS programs aren't working quite how they should, then who ya' gonna call? AMOS Answers of course! Jason Holborn is the man with the answers

BUYING DECISION

I'm thinking about buying AMOS but I have heard that Europress is currently putting the finishing touches to *AMOS Professional*, a more powerful version of AMOS that I think will suit my needs as a games programmer far more. Is it worth holding on to my money until this is released, or is it simply vapourware?

Peter Johnson
Sheffield

It is true that Europress is working on an enhanced version of AMOS which will be marketed under the name of *AMOS Professional*, but it certainly isn't in the final stages of development.

Although Europress hopes to have it out on the streets by the end of the year, I'd be surprised if we were to see anything of it before next spring. If you remember, the original AMOS was delayed by almost a year. After all, writing a programming language as complex as AMOS is no mean feat, so such delays are only to be expected.

My advice to you would be to take the plunge now and buy the current release of AMOS (1.34). Europress has already made it clear that it will offer existing users the chance to upgrade to *AMOS Professional* when it is finally released for a minimal cost. It seems almost certain that *AMOS Professional* will be downwardly compatible with the current release of AMOS, so all the code that you write now will be compatible with any future releases. Buy AMOS now and you'll be able to get to grips with *AMOS Professional* far more quickly.

DANCING SPRITES

I'm trying to write a demo which has sprites dancing in time to a Sound Tracker module played using the TRACK PLAY command. Problem is though, it doesn't work. Even when all channels are playing, all that the VUMETER function returns is a value of zero. Where am I going wrong?

Jason Booth
Edinburgh

Simple! The reason why the VUMETER function isn't returning anything is because you are using the Sound Tracker module routines included in version 1.34 of AMOS. Although these allow you to play modules without having to convert them, they are not compatible with the VUMETER function. You'll have to convert them to AMOS format and then use the standard AMOS 'MUSIC' command.

HELP!

If you've got a problem with AMOS, then AMOS Answers is here to help you. Send your problematic prose to: AMOS Answers, Amiga Shopper, Future Publishing Ltd, 30 Monmouth Street, BATH BA1 2BW

loop, but the principles are still the same.

The code on the previous page serves as a good demonstration of this technique in action. Although it won't run as it stands (you'll need to create a sprite bank which contains eight animated frames to run it), it demonstrates a couple of very important principles that you must understand to be able to animate sprites. As you can see, what it does

"Make sure your animations are running at the correct speed, so they don't become a flickering mess."

is move an animated blitter object containing eight frames across the screen.

The action actually takes place within the loop defined by the 'Do...Loop' instruction. With a little help from the 'WaitVBL' command, the loop is performed once every vertical blanking period. Instead of just changing the frame each and every vertical blank, the loop delays the animation by counting the four before changing frame. This helps to slow the animation down. If it were

to be run at full speed (animated at 50 frames per second), all you would see would be a flickering mess.

It's important to learn how to tie the speed of an animation in with all factors that will affect it. In the case of our bouncing ball, the animation is slowed down to approximately 12 fps (frames per second). To make your animation realistic, you should also take into consideration the fact that the object moves across the screen at about 4 pixels per frame. This becomes particularly true when you animate an object that is walking - if it moves too quickly for the width of each stride, the object will look as if it were skating across the screen rather than walking.

ANIMATION UNDER INTERRUPT

A second (and much easier) method of animating a sprite is to take advantage of AMOS' powerful animation language AMAL. Because AMAL runs under interrupt, it can automatically handle the task of changing frames without you having to worry about the current frame number or the delay between frames. As you can see from the example below, animating sprites under AMAL also produces a lot less code within the main game loop.

Whereas the traditional method covered above needed six lines of code, the AMAL version needs just two lines within the main loop. What's more, because there is no need for any form of decision making, these two lines will run

JARGON BUSTING • JARGON BUSTING

Sprite - A graphical shape, moved as a whole around the screen. The Workbench pointer is an example. Some sprites are manipulated by the Amiga's blitter, meaning that they can move very slowly and rapidly, without erasing the information beneath them as they travel across the screen.

Blitter - Part of the Agnus chip which can move and alter areas of memory (specifically graphics memory) at very high speed, without intervention from the central processor. As a result, it is used extensively for animation.

Pixel - A picture element, one of the thousands of tiny rectangles which make up a computer screen. A pixel is the addressable area on the screen, so a screen's resolution is measured in terms of numbers of pixels displayable across by the number of pixels down.

much more quickly.

The AMAL command to animate a sprite is 'Anim' (note that the 'A' should always be upper case whilst the 'nim' extension is always lower case). The format of the command is 'Anim <Number of Cycles>,<Frame Number>,<Delay>...'. The number of cycles parameter dictates how many times the animation should be performed. If you specify a value of zero, the animation will loop continuously. The Frame Number parameter is simply a pointer to tell AMOS which image from the sprite bank is to be displayed. In our example in Listing 1, we use the images numbered from one to eight. Finally, Delay specified how long the current frame is to be displayed before switching to the next frame. This is expressed in terms of verticals blanks so a value of 50

would force the frame to be displayed for 1 second (there are 50 vertical blanks per second!).

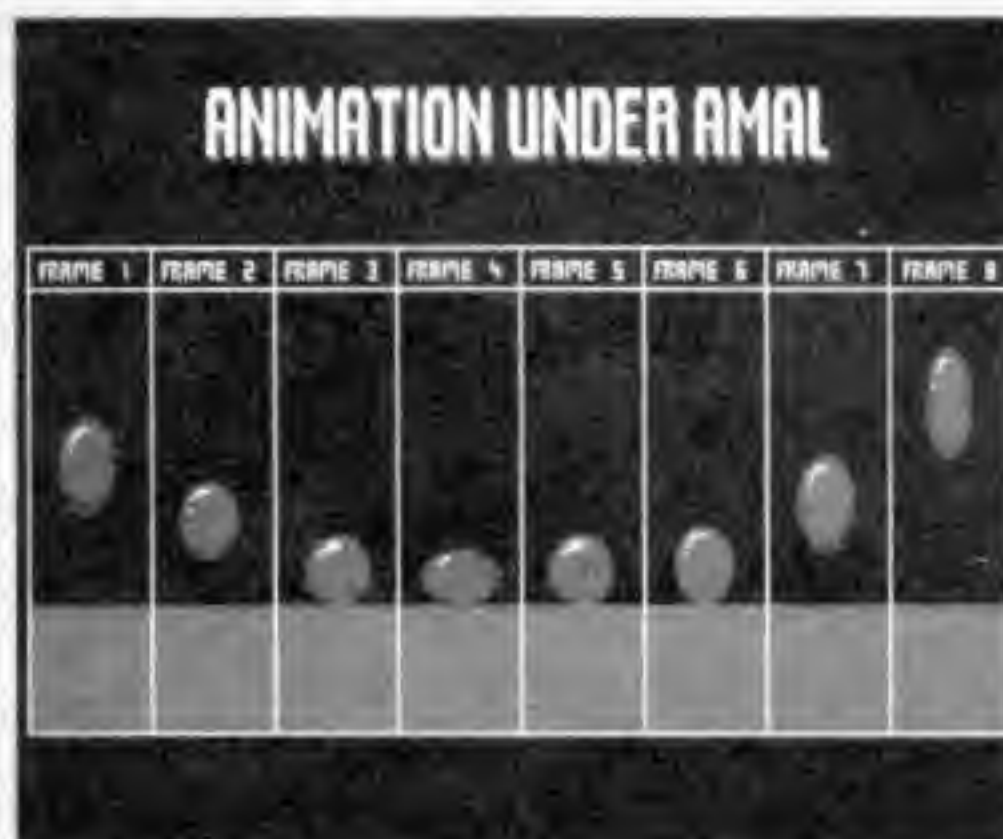
Obviously AMAL programs run independently of the main program, so you will need several AMAL animation strings to control a single sprite.

Say for example you had a little space man running around the screen. While the joystick is pushed left or right, the animation string which cycles through the frames that will animate the spaceman will be run. But if he stops, you would then need another animation string to tell AMOS to display the sprite image of the spaceman standing still (something like 'Amal 0,(1,0)' would do the job. You could then have another AMAL animation string for him either firing a gun or kicking the bucket.

DESIGNING ANIMATIONS

When designing any form of animated sprite for a game or demo, it makes a lot of sense to arrange the frames within your sprite bank in a logical order so that you don't have to know the location of each and every frame within the bank. All you will need to know is the location of the first frame and the number of frames which make up the animation. Although the AMOS Sprite Editor is a fairly powerful beast, I prefer to design all my sprites within DPaint simply because DPaint is a much faster and more flexible tool.

Before you start drawing away however, always start by deciding



The bouncing ball animation - each frame is the same height regardless of whether the ball is high in the air or on the ground, removing the need to mess around with such things as trajectories etc

upon the size of your sprite and then stick to it for all frames. Although AMOS doesn't restrict you to the size of individual frames, it makes things a lot easier if the sprite stays

the same size. You can of course expand and contract the sprite as much as you like, as long as it doesn't grow any bigger than the maximum sprite size which you originally decided upon. I always start designing sprites within DPaint by drawing a grid like that shown below. By using a grid, you can ensure that the animation will flow

smoothly between frames.

Once you've drawn your frames, save them off to disk as an IFF file and boot up the AMOS Sprite Designer. I use the Easy AMOS Sprite Editor simply because it is far easier and quicker to use, although the standard AMOS Editor is still a pretty well endowed beast. All that is now required is to grab the

frames from the IFF file and place them into the sprite bank. If you're using the Easy AMOS Sprite Editor, you can test your animation by clicking on the Camera icon. This will bring up a display that looks like a reel of cine film. You then click on each frame in turn and the Easy AMOS Editor will automatically build up the animation for you allowing you to check that your animation actually works. Now that we have our sprite bank, we can get on with some coding...



If you're lucky enough to own the Easy AMOS Sprite Editor, you can test your animation before committing it to code

AMOS FOR BEGINNERS

Software scrolling

There's no doubting that the Amiga's hardware scrolling facilities which we covered last month are the fastest form of scrolling that AMOS has to offer, but it is rather restricted. Put simply, hardware scrolling can scroll whole screens only. If you need to scroll only a small screen area, you need to use software scrolling.

Unlike hardware scrolling which uses dedicated hardware to scroll the screen, software scrolling uses the Amiga's powerful blitter chip to shift large areas around. Many games programmers prefer software scrolling because it offers a far more flexible method of scrolling the screen. Software scrolling is a viable alternative to hardware scrolling in

terms of speed when accessed through assembly language, but AMOS' software scrolling is not quite as fast as it could be due to the overheads that AMOS imposes. It's still useful for scrolling small rectangular sections of the screen though.

SCROLL COMMANDS

Software scrolling can be achieved using two different methods. By far the easiest method of software scrolling a section of a screen is to use the SCROLL command, as shown in Demo 1. However, before you can use this command, you have to define the section of the screen that is to be scrolled using the 'DEF SCROLL' command. AMOS enables you to define up to 16 different scroll 'zones', each of which must be defined using the DEF SCROLL command. The format is 'DEF SCROLL N,X1,Y1 TO X2,Y2,DX,DY where N is a whole number between 1 and 16 which defines the zone number. X1 and Y1 define the top left hand corner of the scroll zone and X2 and Y2 define the bottom right hand corner of the zone. DX and DY define the number of pixels the zone will be scrolled in a single operation. Positive numbers in DX and DY will scroll the zone to the right and down whilst negative values will cause the zone to be scrolled to the left and up. DX and DY don't actually tell AMOS where the scroll zone is scrolled to - they are 'delta' (relative) values that define the direction and speed of movement.

SOLO PARAMETER SCROLL

The DEF SCROLL command won't actually do a lot on its own. To make the screen scroll, you need to use the SCROLL command. The format of this command is very simple as it needs only one parameter to do its stuff - SCROLL N. N is the zone number that we defined within the DEF SCROLL command. To see this command in action, load up AMOS and enter the short program below.

The SCROLL command is really is nothing more than a glorified block copier that uses the Amiga's blitter to cut out a rectangular section of the screen and paste it down at a given position. The command keeps track of the current scroll position, so there's no need to use any sort of

counter to fix the current scroll position. Another rather annoying limitation of the SCROLL command is the way that it leaves a trail as the rectangular zone is scrolled, so it's up to you to redraw the sections of the screen that the SCROLL command corrupts.



Using the AMOS 'Screen Copy' command, the top 100 pixels of the image are scrolled within three 100 by 100 pixel zones

SCREEN SCENE

Another more flexible method of scrolling the screen under software control is by using the AMOS 'SCREEN COPY' command. With a little bit of clever coding, it can be made to scroll the screen smoothly at quite an acceptable rate.

The format of the Screen Copy command is 'SCREEN COPY <Screen No>,X1,Y1,X2,Y2 To <Screen No>,X3,Y3,Mode. As you can see, the Screen Copy command can be used to transfer rectangular sections of one screen to another. However, before quoting the destination screen as the same index number as the source screen, a rectangular section cut from one screen can be scrolled on the same screen. This isn't usually particularly useful, but it's nice to be able to do so.

The <Screen Number> parameter in the first half of the command dictates which screen the rectangular area is to be cut and the second <Screen Number> parameters sets the destination. Say, for example, you were writing a game which required a small area of the screen to be continuously scrolled to the right. Using a separate screen that is

hidden from the user (using the 'Screen Hide <Screen No>' command), you can have the entire scroll area drawn into a single screen as a series of rectangular strips that can be cut out and pasted into the visible screen using the Screen Copy command. Clever, eh?

As always, the X1,Y1 and X2,Y2 parameters define the size and location of the rectangle that the Screen Copy cuts out. Once again, AMOS uses the Amiga's blitter to perform this operation and it can therefore be pasted down anywhere within the destination screen by setting the X3,Y3 parameter so that it contains the top left hand co-ordinates (the origin) where the block

is to be pasted. The Mode parameter isn't particularly applicable to software scrolling, but let's take a look at it nonetheless. What it does is to allow you to take advantage of the blitter's ability to manipulate an area of memory as it is transferred. The values that you pass are called 'Minterms' and they're in the same format as assembler programs use. The default value is %11000000 (expressed as an AMOS binary number) which just copies the block 'as is', but some interesting results can be gained by altering this binary number - try values of %00110000, %11100000 and %01010000 for example (you can find out more about Minterms in Addison-Wesley's *Hardware Reference Manual*).

BY WAY OF EXAMPLE

Anyway, enough of the techie jargon, let's take a look at a short program, shown in Demo 2, which demonstrates using the Screen Copy command for software scrolling. All it does is load in a low resolution IFF picture and copy a 100 by 100 section from the top half of the screen to three rectangular scroll zones lined up at the bottom of the screen. You'll have to replace the IFF filename with the filename of a picture file of your own, but the results will be the same.

You'll notice that the code includes a couple of extra commands which we haven't covered yet - AutoBack Off, Screen Swap 0 etc. Don't worry too much about these for the moment - they're there to ensure that the software scroll is synchronised with the screen's refresh. If these commands are omitted, the scroll will speed up but it will flicker. Operations of this type must be tied in with the screen refresh which is why I'll be covering synchronisation in great depth in the next issue. In the meantime, type in the listings and experiment. **AS**

DEMO 1

```
' *** Software Scroll
Demo 1 ***
'
Load Iff
"PICS:TESTIMAGE.IFF",0
Double Buffer
Bob Update Off
Autoback Off
Def Scroll 1,10,10 To
310,110,1,0
Do
Scroll 1
Screen Swap 0
Wait Vbl
Loop
```

DEMO 2

```
' *** Software Scroll
Demo 2 ***
'
Load Iff
"PICS:TESTIMAGE.IFF",0
Double Buffer
Bob Update Off
Autoback Off
Do
For C=0 To 220
Screen Copy 0,C,0,C+100,
100 To 0,110,150
Screen Copy 0,C,0,C+100,
100 To 0,10,150
Screen Copy 0,C,0,C+100,
100 To 0,210,150
Screen Swap 0
Wait Vbl
Next C
Loop
```


Find your local group

1520 Plotter Group (ICPUG) ✉ John Bentley 06286 65932.

16-32 Micro Programming AMOS, bimonthly fanzine, PD, (Fish->590) Membership 100FF/£10 Contact F Moreau, 132 rue Jean Follain, 50000 Saint-Lo, France ✉ 31 52 20 02.

Amiga Addicts Newsletter and open nights For more info SAE to A Minnock, Clonkelly, Binn, Co Offaly, Ireland.

Amiga Artists Club 34 Roundhay Mount, Leeds LS8 4DW. For Amiga artists, musicians and coders. Pirates not welcome. Free. ✉ KAM on 0532 493942, 5-8pm.

Amiga Beginners' Club 110 Whitehill Park, Limavady, Co. Londonderry BT49 0QG. Club to help newcomers. Bi-monthly club disk, and a small PD library. Membership £2 for a single disk, or £20 for every issue.

Amiga Computer Club PD Library, graphics, video, DTP, monthly mag SAE for details to R McDonald, 3 Islay Court, Irvine KA11 4JQ.

Amiga Helpline Service DTP, PD, Help/problem service. Free membership. Beginners welcome. Send stamp for more info to: G Keenani, 21 Skirsa Pl, Glasgow G23 5EF.

Amiga Musicians' Club Membership gets you a disk with 50 IFF samples a month for 12 months. Also sample service. Membership £30. Contact Gavin Wylie, Guthrie Street, Carnoustie, Angus.

Amiga Network International 2 monthly club disk, reviews, advice. For info contact Phil or Steve: 434 Denby Dale Rd East, Wakefield, W Yorks WF4 3AE

Amiga PD Oliver MacDonald at Tunley, Albaston, Gunnislake, Cornwall, PL18 9EL. Small but friendly PD Library, 99p a disk. Distribute your own written PD. Send £1.50 for catalogue disk.

Amiga PD Exchange at 27 Spa Rd, Preston, Lancashire, PR1 8SL. Chance to exchange PD, shareware, Fish and Tbag disks. £1 for disk and membership.

Amiga Users' Klub, Windsor House, 19 Castle St, Bodmin, Cornwall PL31 2DX. Meets every Friday from 6.30-9pm, to expand members' knowledge of Amiga and to help solve people's problems. Contact Jack Talling.

Amiga Users Group - FYLDE Advice on Amiga, technical support, discussions, workshops, tuition. £10 year, £6 for 6 months. Contact A Wilkinson, 25 Glen Eldon Rd, Lytham St Annes, Lancs ✉ 0253 724607.

If your group isn't mentioned, fill in the form at the bottom of the page to let us know about you

Amiga Video Producers' Group Meets quarterly in Swindon. For info SAE to J Strutton, 8 Rochford Ct, Grange Park, Swindon, Wilts SN5 6AB ✉ 0793 870667.

Amiga Witham Users' Group 85 Hightfields Rd, Witham, Essex CM8 1LW. Tips and Basic programs. K Anderson ✉ 0376 518271.

Amigaholics Club Free membership. Own disk magazine. For further information contact Kevin Bryan ✉ 071-580 2000 Ext 240 or 29 Wolfe Cres, Charlton, London SE7 8TS.

Amigamania Bi-monthly newsletter (tips, advice etc), quality PD, discount hardware, software and accessories, free advice. Discount card for High St shops. Annual membership fee £10. Contact S Green, 9 St Lukes Walk, Hawkinge, Kent CT18 7EF.

Amos Programmer Club Free membership, swap AMOS programs and PD, disk magazine and help for new users. Contact Gareth Downes-Powell, 6 Brassey Avenue, Broadstairs, Kent CT10 2DS.

AMOS Programmers' Exchange Free membership. Swapping software and ideas. Help available. J Lanng, 7 Majestic Rd, Hatch Warren, Basingstoke, Hants RG22 4XD.

Amos Programmers Group John Mullen at 62 Lonssdale St, Workington, Cumbria CA14 2YD. Programming hints, tips, tutorials plus several others. SAE for info. £10 membership for bi-monthly disk mag.

AMOS User Group Swap ideas, help on AMOS, swap PD and own creations. Andy ✉ 0323 26790 or write: 22 Ceylon Pl, Eastbourne, E Sussex BN21 3JF.

Avon Micro Computer Club Graphics and animation, business and the chance to speak to professional users. £3 per annum. Contact Roger: 95 Downend Rd, Horfield, Bristol ✉ 0272 513224.

Basic Programmers' Group 68 Queen Elizabeth Dr, Normanton, West Yorks WF6 1JF. Encourages the use of Basic, exchanges ideas and assists beginners to the language. Free newsletter Mark Blackall ✉ 0924 892106.

BR & CJ Computer Club 8 Robinson at 23 Fairway Rd, Shepshed, Loughborough, Leicestershire, LE12 9DS ✉ 0392 72889 or 03922 841296. Regular disk mag packed with tips, reviews of games and serious software, game cheats database, demos and utils, very large PD library. Membership £1.25.

Camberley User Group Lectures, competitions, advice, meetings, free membership. For more info contact F Wellbelove ✉ 0252 871 545.

Champion PD Club PD at 30p, newsletters, advice, help and more. Membership £10. Contact Steve Pickett, 31 Somerset Close, Catterick, N Yorkshire, DL9 3HE.

Chester-le-Street 16-Bit Computer Club Ground floor function suite, The Civic Centre, Newcastle Rd, Chester-le-Street. Club meets Mondays from 7.30-9.30pm. Exchange advice and swap tips. Contact Peter Mears ✉ 091-385 2939.

CDTV Users Club Swap views on software and hardware. Contact Julian Lavanini, 113 Fouracres Rd, Newall Green, Manchester M23 8ES.

Chic Computer Club Full details with an SAE to STAMP, Chic Computer Club, PO Box 121, Gerrards Cross, Bucks. Contact Steve Winter ✉ 0753 884473.

Club Amiga £10 a year for PD and a 24-hr helpline service (091-385 2627). For more info send SAE to Chris Longley, 5 Bowes Lea, Shilney Row, Houghton Le Spring, Tyne and Wear.

Club Futura Advice to programmers and beginners. Send SAE for info to G Holland, 16 Hermiston, Monkseaton, Whitley Bay, Tyne & Wear NE25 9AN.

Comp-U-Pal Australian group for users in the outback. Newsletter, helpline, PD library. Membership A\$24. Comp-U-Pal, c/o MDA, PO Box 29, Knoxfield 3180, Victoria, Australia.

Computeque Steve Lailey at Inskip Meeting Hall, Ashurst, Skelmersdale, Lancs on 0695 31378 7.45pm - 10.30 pm every Tuesday. From beginner to advanced user. Half year membership £2.50 children, £3 adults.

Computer Club 16 Laton Rd, Hastings, East Sussex ✉ 0424 421480. A 16-bit club dedicated to being computer enthusiasts Membership costs £15 per year.

Deluxe Cheats Disk User Group Steven Frew at 96 Campden Green, Solihull, West Midlands, B92 8HG. Software advice. Updates every 2 months! £4 for disk £2 for updates.

Edinburgh Amiga Group Membership £5, includes free advice and PD. Contact Neil McRea, 37 Kingsknowe Road North, Edinburgh EH14 2DE with SAE.

Enfield Amiga Club Sean Clifton at 32A Hoe Lane, Enfield, Middlesex EN3 5SL on 081 804 2867. Meetings to be arranged. Get Amiga users together to form a club in this area, for tips/hints/help/swaps. No membership fee.

Exeter 16 Bit User Group Andrew Deeley or Phil Treby at 25A Gloucestershire Rd, Exwick, Exeter, EX4 2EF. Meeting every Wednesday 7pm. Programming £6 per annum.

Guru Masters PD, demos etc, contact the Sheriff, 111 Sherbourne Rd, Banbury, Wolverhampton, WV10 9EU ✉ 0902 782277.

Hampshire PD Club Mike Gallienne at 79, Carless Ct, Rownes, Gosport, Hants, PO13 9PW on 0705 585323. Public Domain Disks at 35p. Competitions once a month. SAE for more info. £10 a year.

Hereford Amiga Group Membership free, help, exchange of PD and shareware. Lotus Turbo 2 Quad Player Championship. Contact John Macdonald, Alma Cottage, Allensmore, Hereford HR2 9AT ✉ 0981 21414.

In Touch Amiga Penpals, contacts, PD, swaps £2.50/year. Contact P Allen, 0342 835530, PO Box 21, Lingfield, Surrey RH7 6YJ.

Independent Commodore Products Users' Group Biggin Hill Library, Church Rd, Biggin Hill, Kent. Meets most Thursdays from 7.45-9.45pm. Lectures and open nights. ✉ John Bickerstaff after 8.30pm 081-651 5436. Also national network of user groups. Contact individual groups

for details on activities, cost, meetings etc:
Andover ✉ R Geere 0264 790003
Anglesey ✉ N Massey 0407 765221
Coventry ✉ W Light 0203 413511
Dublin ✉ G Reeves 010 353 12 883863
Durham ✉ S Harvey 68 Wood Vue, Spennymoor, Co Durham DL16 6RF
Leeds ✉ R Eyre 0532 487691
Macclesfield ✉ P Richardson 0298 23644
Merseyside ✉ G Titherington 051 521 2553
Mid Thames ✉ M Hatt 0753 645728
S Wales ICPUG ✉ I Kelly 0222 513815
Solent ✉ A Dimmer 0705 254969
SouthWest ✉ P Miles 0297 60339
Stevenage ✉ B Grainger 0438 727925
Watford ✉ M Pryor 0442 864 234
W Riding ✉ K Morton 0532 537318
Wigan ✉ B Caswell 0942 213402

Kent Youth Computer Group Computer fair visits, programming, video and DTP work, monthly newsletter. 30p entry/evening. Meetings Sundays 6.30 - 9pm at the D Bowen Youth centre, Kingsnorth Road, Ashford, Kent TN23 2LY. ✉ 0233 629804.

Maritime Amiga Club Maritime computing, interact with seafarers ashore on Amigas. Contact CDR K Osei, GN Ships Refit Office, 51 Rue de la Bretonniere, 50105 Cherbourg, France. ✉ 33 33225447.

Norwich Masked Heros SAE for info. Free membership. Contact Zorro, 278 Aylsham Rd, Norwich, Norfolk NR32RG ✉ 0603 409899.

Pennine Amiga Club 26 Spencer Street, Keighley, West Yorkshire BD21 2BU. Free membership, free advice and a newsletter. Contact Neville Armstrong ✉ 0535 609263.

Public Domain Exchange Demos, music, utilities, aimation Annual fee £8 Contact D McLeish, 26 Taunton Ave, Leigh, Lancs WN7 5PT.

Public Domain User Group Swaps PD, provides advice. SAE to 12 Oxford Rd, Guildford, Surrey.

Rye Computer Club Swap/meet at the Rye Community Centre. For info contact Oliver Campion, 71 The Mint, Rye, E Sussex TN31 7DP ✉ 0797 222876.

Serious Amiga Users Membership £5, £1 admission. Contact J Kucak for more; ✉ 0706 290387, Fortnightly meetings 7.30-11 at the High Crompton Conservative Club.

Shieldsoft PD at Wilmar Lodge, 13 Churton Rd, Rhyl, CLwyd.LL18 3NB. Write for more info. Basic programming help. CLI: Amos help. Disks from 50p to 80p. Membership free.

Sherlock PD Quarterly disk mag, help and advice for beginners. 50p/disk. A Doyle, 44 Milton Street, Warrenpoint, Co Down, N Ireland.

Shropshire Amiga Link Advice, monthly disk mag, PD £15/year fee. Contact N Cockayne, 2 Dodmoor Grange, Randlay, Telford, Shropshire TF3 2AW ✉ 0952 591376.

Slim Agnus 115 Brocks Drive, North Cheam, Sutton, Surrey SM3 9UW. Meet last Thursday of month. PD library, BBS, advice from Amiga experts. Contact Philip Worrel.

Software Exchange Service 13 Bournville Lane, Stirchley, Birmingham, West Midlands B30 2JY. Michael Pun ✉ 021-459 7576.

South 16 Bimonthly mag and disk, also PD library. SAE for more info. £10/year. Contact Bruce, PO Box 16, Southampton SO9 7AU.

South Wales Club Newsletter, PD library, free newsletter, programs, help and advice. For more info contact D Allen 53 West Avenue, Trecenydd, Caerphilly, CF8 2SF

Unique Styles Derek at 15 Montgomery Rd, Highbrooks, Tunbridge Wells, Kent on 0892 518319. By post only. For Amiga artists, programmers/musicians. Free membership.

Warpdrive (friends of Amiga) Amiga help-line, PD library, bi-monthly disk mag, free drinks, competitions and infosheet. £15 a year. Contact B Scales 110 Burton Ave, Balby, Doncaster DN4 8BB ✉ 0302 859715.

WCSPSA! Help available. PD disk of your choice and newsletter every month. PD at £1. Membership fee £25. For more information contact A Jamieson ✉ 0749 677609.

Wrexham District Computer Club PD, library, equipment loan. 10p to join, 50p to get in. Memorial Hall, Wrexham every Thursday, 7-10pm. Contact Paul Evans, 3 Ffordd Elfed, Rhosnesi, Wrexham, Clwyd LL12 7LU.

Your Amiga Club Helplines, PD, social evenings, classes, club mag. Fee: £12, family £15. Contact P Higgins ✉ 0424 892269. The Old Chapel, Church Rd, Catsfield Battle, Sussex TN33 9DP.

GET YOURSELF LISTED

If you run a user group which isn't listed on this page, fill in the form below for your free entry. Send it to **Amiga Shopper User Groups List, 30 Monmouth Street, Bath BA1 2BW**. We reserve the right to refuse entries.

AS17

Group name

Contact name

Contact telephone number

Contact address

.....
.....

Place of meetings

Time of meetings

Type of activities

.....

Membership fee

WE ARE OPEN ALL HOURS

9am-10pm Mon-Sat
10am-6pm Sun

HARDWARE

A600.....	£379.00
A500 Plus & Software.....	£349.00
A1500 & Software.....	£565.00
1084S Monitor.....	£237.00

Phone for 2000 & 3000 prices.

JOYSTICKS

Quickshot II.....	£6.50
Python Micro Switched.....	£8.00
Speedking Autofire.....	£10.50
Competition Pro 5000 Black.....	£11.90
Maverick Autofire.....	£12.95
Zipstick Autofire.....	£12.95
Intruder.....	£21.50
Aviator Flight Sim.....	£23.50

LOOK! LOOK! LOOK!

TRACTOR FEED DISK LABELS

500 plain white labels & software to print your own professional labels

Only £9.95

SPECIAL OFFER

1000 labels with software £13.50

ACCESSORIES

Amiga Int drive.....	£49.00
Cumana Ext drive.....	£54.00
Zydec Ext drive.....	£49.00
512K upgrade with clock.....	£27.90
512K upgrade no clock.....	£24.90
1.5 Meg upgrade with clock.....	£79.00
1 Meg Amiga plus upgrade.....	£48.99

DISKS with labels

Unbranded Bulk 100% Certified

3.5" DSDD.....	37p each
3.5" Rainbow.....	44p each
3.5" DSHD.....	50p each
5.25" DSDD.....	28p each

Branded Disks

3.5" DSDD.....	45p each
----------------	----------

Please phone for bulk purchase discounts

MISCELLANEOUS

Mousehouse.....	£1.60
Mouse Mat.....	£2.50
Disk Drive Cleaner.....	£1.80
Amiga Dust Cover.....	£3.50
Monitor Dust Cover.....	£3.50
Mouse/Joystick Auto Shift.....	£14.95
Amiga Light Pen & Software.....	£32.00
Mega Mouse.....	£14.90
Squik Mouse.....	£14.90
Naksha Mouse & Accessories.....	£22.00
Zy-Fi Amplifier & Speakers.....	£37.95
Thumb & Finger Trackerball.....	£19.99
Crystal Trackball.....	£32.00
Action Replay Mark III.....	£57.00
Techno Sound Turbo Sampler.....	£33.00
2 Piece Printer Stand.....	£5.70
Midi Master.....	£26.00
Wordworth 1.1.....	£77.50

PRINTERS

Star LC-20.....	£149.00
Star LC 24-10.....	£214.00
Star LC200 Colour.....	£204.00
Star LC-24-200 Colour.....	£294.00

STORAGE BOXES

10 capacity.....	£0.95
NEW 200 Cap box: stackable/lockable.....	£16.50
50 capacity lockable.....	£3.95
100 capacity lockable.....	£4.50
80 cap Barix stackable/lockable.....	£7.99
150 cap Posso stackable/lockable.....	£15.00
250 cap stackable/lockable.....	£18.99

Most of the above available in 3.5" and 5.25"

Orders by phone or post to:
DIRECT COMPUTER SUPPLIES

0782 - 642497

0630 - 653193

0782 - 311471

9am - 5.30pm week

Anytime

Evening/Weekend

54 Spring Road,
Longton,

Stoke-on-Trent,

Staffs ST3 2PX

Prices include VAT
Postage please add £3.30

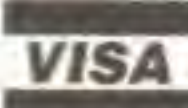
We accept cheques/

P.O.'s/Visa/Access



AMIGA REPAIRS

JUST £44.95 inc.



- ★ Commodore registered
- ★ Over 10 years experience with Commodore computers
- ★ 20 qualified technician engineers at your disposal
- ★ We will undertake to repair your Amiga 500 computer for just £44.95 including parts, labour, VAT and post & packing
- ★ Some computers should be repaired within 24 hours of booking in.
- ★ Prices include full service check, overhaul, soak-test and replacement of power supply unit if necessary
- ★ Repairs to keyboard and disk drive also included (£25 extra if these units are unrepairable and require complete replacements)
- ★ All repairs covered by a 90 day warranty



**Upgrade your Amiga from 512K to 1Mb of memory for just £25.00
SPECIAL EXCLUSIVE OFFER:**

**If you submit your computer to ourselves for repair, enclosing this
advert along with just an additional £25, we will supply and fit a 512K
memory expansion at no extra cost.**

How to take advantage of this exceptional offer: simply send or hand deliver your machine to the workshop address detailed right, enclosing payment and this advert and we will do the rest. (If possible please include a daytime telephone number and fault description).

** If you require 24 hour courier to your door, please add £5 else your computer will be sent back by contract parcel post.*

WTS ELECTRONICS LTD

STUDIO MASTER HOUSE

CHAUL END LANE

LUTON, BEDS, LU4 8EZ

Telephone (0582) 491949 - (4 lines)

WTS reserve the right to refuse machines that in our opinion are tampered with, to an extent beyond reasonable repair



DYNAMITE

PRICE CRASH NEW AMIGA 600

£329.95

THE NEW AMIGA FEATURING

- ★ ON SITE MAINTENANCE
- ★ SMART CARD FACILITY
- ★ BUILT IN T.V. MODULATOR
- ★ IDE HARD DRIVE CONTROLLER
- ★ DELUXE PAINT III
- ★ MYSTERY GAME

SPECIAL INTRODUCTORY
OFFER

£329.95

A600 HD INC 20Mb HARD
DRIVE

£459.95

(THE HD VERSION DOES NOT INCLUDE DPAIN III
OR A GAME)

★ AMIGA A500/PLUS PACKS★

1.3 STANDARD A500	£259.95
A500 PLUS STANDARD PACK	£309.95
A500 PLUS CARTOON CLASSICS	£324.95

See our memory section to upgrade above

LIMITED SPECIAL OFFER

★ UNBEATABLE MONITOR DEALS, SAVE £££'S

COMMODORE 1084S **£199.95**

PHILIPS 8833 MKII **£184.95**

GOLDSTAR TV/MONITOR **£159.95**

⚡ These prices are only applicable when a monitor is purchased with any Amiga.
Add £15 if you wish to purchase them separately.

★ GREAT VALLEY PRODUCTS ★ 2 YEAR WARRANTY ★ HARD DRIVES ★

A500:

SERIES II HD 8+ 52Mb ... **£334.95**

SERIES II HD 8+ 120Mb ... **£439.95**

A1500/2000:

SERIES II HC 8+ 52Mb **£264.95**

(Configurations up to 420Mb
8Mb RAM available please call)

NEW

**HARD DRIVE
+ ACCELERATOR**

THE ULTIMATE A500 EXPANSION PRODUCT!

£659.95

A530 COMBO: 40Mhz Accelerator + *52Mb HARD DISK *1Mb RAM
* Up to 8Mb RAM and 120Mb/240Mb
versions available call now

★ PC 286 EMULATOR★

PC 286 16Mhz EMULATOR MODULE = **£219.95**
For the series II and A530 hard drives

Easy installation that does not invalidate your warranty

STEREO COLOUR MONITORS

COMMODORE

1084S

£214.95

PHILIPS

8833

MKII

£199.95

FREE F19 Stealth Fighter + 12 month on-site
maintenance

* CABLE TO YOUR COMPUTER ONLY £3.99 WHEN PURCHASED WITH MONITOR

★ DISK DRIVES ★

ALL OUR DRIVES INCLUDE:

TEN x 3.5" DISKS + 3.5" CLEANER KIT
FREE OF CHARGE!!

✦ DIRECT A500 INTERNAL
REPLACEMENT **£39.95**

✦ CUMANA CAX 354 Slimline design **£49.95**

✦ Power PC880E
Featuring Anti-click device **£49.95**

✦ Power PC880B
with Blitz/virus hardware **£69.95**

✦ This offer will run for a limited
period only ✦

AMIGA CDTV SUPER DEAL

£349.99

Save £250 by trading in your Amiga 500 for a
multimedia pack:

- * AMIGA CDTV * KEYBOARD
- * FLOPPY DISK DRIVE * MOUSE

CALL NOW FOR DETAILS
* OFFER CLOSES END OF SEPTEMBER

AMIGA 1500 PACK

FEATURING:

- ★ LATEST MODEL, INCORPORATING Workbench,
Kickstart 2.0
- ★ GETTING THE MOST OUT OF YOUR AMIGA (book)
- ★ PLUS:- Home Accounts, Platinum Works, Deluxe
Paint III, Puzznic, Elf & Toki

£539.95

This machine is designed for use with a monitor (SEE
OFFER), or a TV modulator can be bought for £19.99

KLONDIKE DEALS

DYNAMITE COMPUTERS
DIG DEEP FOR
THESE SPECIAL
BARGAINS.....

★ AMAZING SOFTWARE CLEARANCE ★

THIS MONTHS SPECIALS: AGONY £12.99, LAZER SQUAD + CHAOS £8.99

* Back To The Future II£3.99	Ninja Rabbits£5.99	Barbarian II£12.99
* Nightbreed£3.99	Battleships£5.99	* Jimmy White£12.99
* Days Of Thunder£3.99	Pacmania£5.99	WWF£12.99
* Heroes Of The Lance£3.99	Immortal£7.99	Terminator 2£12.99
Shadow Of The Beast II£4.99	Bart Simpson£7.99	Cisco Heat£12.99
Captain Planet£4.99	Horror Zombies£7.99	Outrun Europa£12.99
Lemmings£4.99	* TV Sports Football£7.99	4D Boxing£12.99
Bubble Bobble£4.99	Megalomania£9.99	* Wolfpack£12.99
Head Over Heels£4.99	Populous + Lands£9.99	Chessmaster 2100£14.99
Colossus Chess X£5.99	* Pro Tennis£12.99	Astra Ten Games£17.99

HURRY HURRY - LIMITED STOCKS AVAILABLE

NB * denotes not A500 Plus/A600 Compatible

COMPUTERS

THE PRICE BLASTERS

★ ART STUDIO★

Deluxe Paint II	£9.99
Spritz Paint	£9.99
Deluxe Paint III.....	£14.99
Fantavision	£14.99
Comic Setter	£19.99
Photon Paint V2.0.....	£19.99
Deluxe Paint IV	£54.99
Walt Disney Animator ..	£64.99
Professional Draw V.2. ...	£89.99

★ VIDEO STUDIO★

Vidi Amiga + Vidi Chrome...	£69.99
Rombo RGB Splitter.....	£39.99
Take 2 Animation Package ..	£34.99
Complete Colour Solution...	£99.99
Colour Solution + Take 2 ..	£129.99
Rocgen Genlock	£84.99
Rocgen Plus Genlock.....	£129.95
Scala 500.....	£69.95
Scala (requires 1Mb)	£149.95
Roctec Genlock	£99.95

★ SOUND STUDIO★

Music X Junior	£19.99
Midi-Master Interface + 2 Midi Cables + Music X Junior.....	£29.99
Music X 1.1	£49.99
Rombo Mega-Mix.....	£29.99
GVP Sound Studio.....	£49.95
Bars and Pipes	£89.95
Bars and Pipes Pro.....	£179.95

★ STAR/CITIZEN★ PRINTERS

CITIZEN 120D+	£109.95
STAR LC20.....	£119.95
CITIZEN SWIFT 9.....	£169.95
STAR LC200	£169.95
STAR LC24-20 (NEW).....	£179.95
STAR LC24-200 (MONO)	£199.95
CITIZEN 224	£209.95
STAR SJ48 BUBBLEJET.....	£214.95
STAR LC24-200 (COLOUR).....	£249.95
* CITIZEN SWIFT 24e.....	£264.95

* Complete with free colour kit whilst stocks last

ACCESSORIES

PARALLEL PRINTER CABLE.....	£3.99
UNIVERSAL PRINTER STAND.....	£3.99
200 SHEETS OF CONTINUOUS PAPER.....	£1.99
COLOUR KIT OPTION FOR SWIFT 9/224/24e	£34.95

★ POWER HAND SCANNER★

FEATURING:

- ★ LATEST VERSION 2 SOFTWARE
- ★ 64 GRAYSCALES
- ★ 100 - 400 DPI

**PLUS FREE PHOTON PAINT 2.0 (RRP £89.95)
A DYNAMITE EXCLUSIVE AT £99.95**

★ MEMORY ★

512K RAM EXPANSION (1.3).....	£15.95
512K RAM EXPANSION PLUS CLOCK.....	£19.95
1MB RAM EXPANSION (A500 PLUS).....	£29.95
1Mb by 8 SIMM boards (GVP)	£26.95

A500 RAM BOARDS

(fully auto config/full thru' port)	
2Mb	£119.95
4Mb	£179.95
8Mb	£279.95

ACCESSORIES/EXTRAS

10 BLANK DISKS (3.5 DS/DD).....	£3.99	ZIPSTICK SUPERPRO JOYSTICK	£9.99
50 BLANK DISKS (3.5 DS/DD)	£17.99	QUICKJOY TOP -STAR JOYSTICK	£14.99
QUALITY MOUSEPAD.....	£1.99	AMIGA SOFT DUSTCOVER	£3.99
40 CAPACITY LOCKABLE BOX.....	£2.99	AMIGA PERSPEX DUSTCOVER.....	£9.99
80 CAPACITY LOCKABLE BOX.....	£4.49	REPLACEMENT MOUSE	£9.99
ROLL OF 1000 3.5" DISK LABELS	£6.99	REPLACEMENT TV MODULATOR.....	£19.95
MOUSE/JOYSTICK Switcher box unit.....	£9.95	REPLACEMENT POWER SUPPLY.....	£29.95

TO PLACE YOUR ORDER PHONE THE DYNAMITE HOTLINE

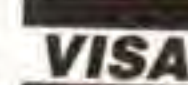
0234 214212

DYNAMITE HOUSE 44a STANLEY STREET, BEDFORD

HOW TO ORDER



Call us NOW on
0234 214212



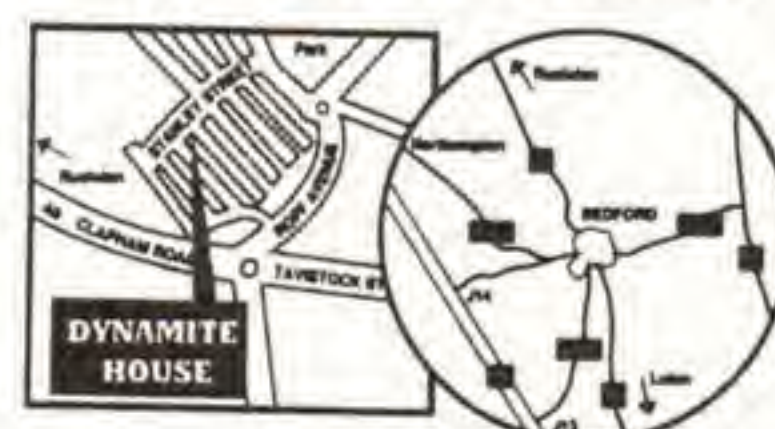
Send Cheque or postal order to

DYNAMITE COMPUTERS
Dynamite House
44a Stanley Street
Bedford MK41 7RW

NB Please write cheque guarantee card number on the reverse of cheque to ensure same day clearance (cheques without card number subject to 10 day clearance)

Call into our showroom for a fast and friendly service

Retail/Queries 0234 364428



DELIVERY CHARGES*

£2.95 for orders less than £100
£4.95 for orders over £100
Next day express service £7.50
Saturday delivery only £15.00

*Charges applicable to UK mainland only

PLATINUM SERVICE CARD

Only £19.99!

- Next day courier delivery
- 30 day exchange for new
- 1 year guarantee giving free collection and delivery should a fault occur.

All prices subject to availability and may change without notice. E & OE



STOP PRESS • STOP PRESS • STOP PRESS PUBLISHERS CHOICE SCOOP*

COMPRISES: TUTORIAL, KINDWORDS 2
(WORDPROCESSOR) PAGESSETTER +
HEADLINE FONTS + ARTISTS CHOICE (EASY DTP)

This pack used to come with the Amiga 'Class of 90's' Pack but we've managed to source a few and are able to offer them at the giveaway price of **£19.95**

* N.B. This package is **NOT** Plus/A600 compatible

You deserve the best!

Now you can get the best... with PEN PAL!

A superb package, with immense power, to fulfil all your word processing requirements and... it includes a Database! It's all so easy to use, you probably won't need to refer to the extensive 250 page manual too often.

Whilst working, you can open up to four documents simultaneously (memory permitting), search and replace; cut, copy and paste; check your spelling with a 100,000+ word dictionary. You can import your favourite IFF/HAM graphics, from programs such as DPaint II or Clip Art files in various sizes and colours. You can automatically flow text around graphics in any Workbench compatible font (there are over 200 available styles), in different sizes and colours to suit your design... even as you type. All this from a word processor and... Much, Much, More!

As you can see, this is not just any ordinary word processor! Full Page View with position, edit and creation of graphic objects. Mail Merge using the built in database and forms designer. Creation of templates for complex reports, into which the database can be merged.

Operating with 32 fields per record, and 32,000 records per database with a fast sort of 1000 records in less than 5 seconds this is a *real* database.

Pen Pal requires an Amiga 500/1500/2000 or 3000 with a minimum of 1 megabyte of available memory.

Pen Pal

When...you deserve the best!

£79.95

"...its handling of graphics is unsurpassed: Pen Pal is the only program I tested that will automatically wrap text around graphics..."

Amiga World...Jul. '90

"...without beating around the bush Pen Pal is very special..." - "There is little to fault Pen Pal and it deserves to do well."

Amiga Format...Dec. '90

"...I am extremely pleased with your product especially the Graphic Capabilities within the Word Processor. Having the Database on the same disk has made PEN PAL the best program I have..."

D.S.R., Plumstead, LONDON

"...Please let me tell you how amazed I am at how EASY IT IS TO USE PEN PAL. The manuals supplied are very informative and very clear..."

P.S.S., Clifton, NOTTINGHAM

"...A most excellent piece of software..."

E.P.H., Strathclyde, SCOTLAND



Pen Pal is supplied into the UK through...
Gordon Harwood Computers New Street Alfreton Derbyshire DE5 7BP
Telephone: 0773 836781 Facsimile: 0773 831040



This month we take a look at some of the shareware BBS systems available. There are now numerous systems available, all packed with features. Each one could take a whole issue to examine in detail. To give you a taster of the sort of thing that is available I have described one system in detail, the *Soft-Span BBS*, and outlined three others – *Transmiga*, *BBS-Amiga* and *TagBBS*. After that we'll be taking a look at what you should consider if you're thinking of programming your own BBS board.

SOFT-SPAN BBS

The first BBS we'll be looking at this month is the *Soft-Span BBS* from Mark Wolfskehl.

Soft-Span is a shareware system, costing \$25 to register. Mark doesn't offer very much of an incentive to register though, you just get a discount off version two of the software if and when it appears. Despite the lack of incentive though, the software is very cheap, it will cost you around £15-£20 to register from the UK. For a BBS system this is excellent.

The first thing you'll notice about the system is a lack of documentation. Commercial systems come with hundreds of pages of documentation. The *Soft-Span* documentation covers just over five pages, most of that is a list of files and directories included in the package. It is these files which enable you to configure the system. Each file contains the details of what the contents mean,

but more on that later.

The sparse documentation makes the obligatory plea for you to register the software, lists the files and directories you need and gives a very brief description of how the system works.

Soft-Span is split into two sections. The file directories and the message bases, both of which are pretty self explanatory. The user moves about the board using commands to join message bases and file directories, from which messages and files can be accessed.

Soft-Span BBS (C) 1989 Mark Wolfskehl

Soft Span Bulletin Board System
Version 1.1 (C) 1989 Mark Wolfskehl
All Rights Reserved
Serial number SHARE001

Last caller: GOTH
Caller number 1
Caller # 1 on July 5, 1992

Waiting for a call... Press F1 for local logon, F2 for info

Soft-Span waits for a caller, it may be bland but it's functional

NO MENUS!

Soft-Span is unusual in that it takes a different approach to most packages.

Instead of the usual menu driven approach where each menu provides options relevant to the current area, files, messages or whatever, *Soft-Span* uses a command line system which is closer to CIX than your normal BBS.

Figure 1: Soft-Span's access configuration

```
# New user access- for first time signed up
NEWUSER          ; Indicate the type of access
TIMELIMIT 60     ; In minutes
STARTCREDIT 50   ; Number of credits - applies to new users
EMAIL            ; Access to read and send electronic mail
FBACK           ; Access to leave feedback
UPLOAD          ; Access to upload files

# Here are the access bits to the various directories
DIR 1           ; Amiga Utilities - Bit number 1
DIR 2           ; Amiga Games - Bit number 2
DIR 3           ; Amiga Graphics & Sound
DIR 4           ; Text files
DIR 5           ; IBM files

# Here are the access bits assigned for the message bases
BASE 1          ; Amiga Discussion - Bit number 1
BASE 2          ; IBM PC - Bit number 2
BASE 3          ; General computer
BASE 4          ; Public Notices
BASE 5          ; Classified Ads
BASE 6          ; BBS Ads
BASE 7          ; Comments & Suggestions
BASE 8          ; Amiga Programming
BASE 9          ; C Programming
BASE 10         ; Story Board
BASE 11         ; Music Discussion
BASE 12         ; Movie Reviews
```

Build your own BBS

This month our intrepid sysop Phil Harris looks at the shareware solutions to setting up a bulletin board

Soft-Span BBS (C) 1989 Mark Wolfskehl

You are caller #2 and caller #2 today
Last caller was GOTH

Checking mailbox...
No messages waiting

This is the main Bulletin for SoftSpan. Make your regular announcements in this file

SoftSpan Main Menu

ALIAS	BASES	CD
CHAT	CONF LG	DEL
DIR	BC	FF
DO	HELP	LIST
LOG	MAIL	MENU
OFF	PASS	POST
READ	UL	USERED

VERSION

? - Displays this menu

56 minutes left

When someone finally does call Soft-Span, this is what they see with a default system... The main menu

This layout makes the *Soft-Span* system simple to learn and fast to operate. What's more it reduces the amount of disk space which is

required to run a board.

Once you have logged on to the system, and answered a few standard questions (address,

WHERE CAN I GET IT?

- Thanks to lewt@CIX *Soft-Span BBS* is available from the Amiga conference on CIX (081 390 1244). It is also available on Fish 374 and will probably be on other boards as well.
- *Transmiga BBS* was downloaded from End Zone BBS (0524 752245) which also features a couple of other BBS systems.
- *BBS-Amiga* is from Fish 30, and is also likely to be on your local board.
- *TagBBS* was downloaded from Chiba City (0501 44262), another BBS which features a lot of software, including several BBS systems, and a very friendly sysop.

telephone number etc) you are presented with a list of commands which the system understands. These commands can be entered at any point and are similar in some respects to AmigaDOS commands.

In addition, each command has a help file, accessed using `HELP <command>`. So `HELP GO` would give the help entry for the `GO` command.

- **MENU** – Another form of help, the

- **MAIL** – Moves into the electronic mail area (see below).

- **POST & READ** – These two commands allow the user to post and read messages in the current message base.

- **OFF** – The OFF command is the one strange item. It is the command used to exit the system. A more sensible choice would have been LOGOFF. LOG is used to display the current user log though.

NEED PROMPTING?

As you move about the system, the prompt you are given when the system is expecting a command varies. It always reflects your position within the board, so if you were in a message base, AMIGA and a file area, GAMES your prompt would be:

AMIGA! GAMES>

If you hadn't joined a message base, your prompt would be:

! GAMES>

If you'd only joined the AMIGA message base the prompt would be:

AMIGA>

Soft-Span also features a separate e-Mail system. The MAIL command takes you to the "Electronic Mailroom". From here you can send and read e-Mail or list the users registered on the system. This last option is useful for finding out the name of the person to whom you wish to send mail.

CONFIGURING THE SYSTEM

There are five main areas in which the sysop can configure the system. Each area takes the form of a text file. These text files are not described in the documentation but comments within the files themselves explain what they do.

You would be wise to print out each of the text files if possible; that way you can look them over and learn which aspects of the system can be modified, and how to do it.

To edit the text files you'll need a text editor of some sort, MicroEMACS from the Workbench is suggested by the author but the AmigaDOS ED or Notepad would do.

ACCESS CONFIGURATION

Figure 1 on page 93 shows the access configuration file that comes with the system.

This file is used to define which areas users will have access to for three levels of access: NEW USER, VALIDATED and SYSOP. Access control is limited; control is only given over the amount of time on-line, upload capability and access to message bases and file directories for downloads. New users are also allocated a maximum number of files they can download.

THE MESSAGE BASES

There can be up to 32 message bases in a *Soft-Span* system, and each one requires an entry in the BASES text file.

Each entry in the configuration files details the name of the message base, a short description, the type of access to the base, either read only or read/write.

These entries also define the maximum number of lines within each message, and the maximum number of messages allowable in that particular message base.

Figure 2 shows the example BASES entry for the first message base in the example code.

DOWNLOAD CONFIGURATION

The DLOADS text file details the configuration for file directories. In a similar manner to the message base



The default *Soft-Span* system comes with a whole collection of predefined message bases...

COMMAND OF THE LANGUAGE

The theory behind using a command language is that you will find it easier to remember all the commands in the system, making it much easier to use. Whether this is a good idea or not is open to debate, most users will find it a little strange at first until they get used to the unusual interface.

There is a total of twenty-two commands, the most useful being:

- **BASES** – Lists all the message bases on the system.
- **CD** – Moves to a given file area, just like the AmigaDOS command of the same name.
- **CHAT** – Enter into chat mode with the sysop. Chat mode is a simple “type to each other” interface, with the sysop being able to edit a user’s configuration while in chat mode.
- **CONFIG** – This gives users access to their configuration information. It allows them to alter their screen length, the type of transfer protocol they wish to use, the number of lines on screen etc.
- **DIR** – This lists all the available file areas (directories) on the board. Again, this is just like the AmigaDOS command.
- **UL & DL** – These two commands allow the user to upload and download to the current file directory.
- **GO** – Moves to the given message base, GO AMIGA would move you to the Amiga message base. The GO can be omitted so typing AMIGA would move you to the Amiga message base as well.
- **HELP** – A very useful command, this moves the user to a help menu which provides help on the various aspects of the system. Reading and posting messages, electronic mail, file transfers and the editor all have their own help sections.

MENU command gives a list of all the commands available with a one line description of what they do.

- **LIST** – List the files in the current file directory.

Figure 2: Example BASES entry for the first message base

```
# This file contains information about all the message bases
# There are 32 bits for access to the message bases ↓
#   numbered 1-32
# Two types of access - ACCESS indicates read and post ↓
#   access
#   - READONLY access is for, guess what, reading only
# if ACCESS is zero, everyone gets full access to the base
# if READONLY is zero, everyone gets at least read access ↓
#   to the base
# ACCESS and READONLY are access bits (1-32) assigned to ↓
#   that base

# NOTE: The Email and feedback descriptors are at the end ↓
#   of the file
#   be sure you take a look at them

# Each message base gets an entry as follows

# BASE defines a message base called "Amiga"
BASE Amiga
# DESC is a short description of the base
DESC General Amiga Discussion
ACCESS 1           ; This is the read/write access bit assigned
#                   ;to this base
READONLY 30        ; This is the read only access bit assigned
#                   ;to this base
# This is the path where the message base file will be ↓
#   located
PATH soft_span:bases/
MAXLINES 60        ;This is the maximum length (in lines) of
#                   ;any message on this base
HIGHMSG 100        ;This is the maximum number of messages
#                   ;this base will hold

# This base name is REQUIRED! Don't change it!7
BASE Email
DESC Mail Management
ACCESS 32          ;Access bit 32- only for the sysop
READONLY 32
PATH soft_span:bases/
MAXLINES 40
HIGHMSG 100
```


configuration for this file, it gives the directory name, description and the path for the directory where the files will be stored.

Finally the access number for this area is given. The end of the file details the upload directory where

favour of the mouse may prefer to stick with the easy-to-use menus.

Apart from the unusual interface it offers very little new. There are no statistics available, no ways of calling external programs.

Configuration is simple, no

like *Soft-Span* systems though, the unusual interface ensures that.

At \$25 *Soft-Span* is a cheap system, and more importantly it would be perfectly feasible to run the system from floppies because the software itself takes up so little space. As such, it is ideal for people on a low budget wishing to set up their own board.

TRANSAMIGA BBS

The *Transamiga BBS* system is a relatively new BBS system written partly using HiSoft Basic which aims to provide a more standard system than *Soft-Span*. It is also more powerful, meaning that it takes significantly longer to set up: it's not a plug-in and go system.

Unfortunately *Transamiga* arrived too late to be able to provide a

The file transfer protocols used by the system are provided using external libraries. This means that you can use any protocols you have libraries for. Currently libraries are available for *XModem*, *ZModem* and *Kermit* transfer among others.

HIGH SECURITY

Transamiga has plenty of security measures built in, up to 256 security codes (not many compared to PC based packages but probably more than enough), daily time limits and upload/download control. Commands which a user is not entitled to use are invisible to him.

USER FRIENDLY

The program supports hot keys, ANSI menus are supported allowing you to have full colour menus and even animations if you wish. The software has been written with Fidonet in mind and has been designed to make it easier to run as a Fidonet board.

Finally, it's reasonably priced. It's not as cheap as *Soft-Span*, it's \$40 for UK users but it's a very powerful system, rivaling systems costing over double that. Stay tuned for more details but if you're looking for a system and are sure you want to put the effort in, take a look at *Transamiga*.

BBS-AMIGA 1.1

This was the first Amiga BBS available on the Fish disks, and it shows. It was written using AmigaBasic which does have the advantage that you can fix bugs or modify it as you wish. It is also designed specifically for a two drive system, hard drives being a real rarity when this was written.

There is the disadvantage that the software is old, and lacks the majority of the features you'd get in modern software. It could be used as the basis for a "real" system of your own, but this system is really only for the desperate.

TAGBBS

Again, this was originally from a very early Fish disk (66 in fact) but it has been developed as time progressed. Despite not appearing on any more Fish disks it is now up to version 5.

Unfortunately the version 1 downloaded would not run correctly and there was no documentation to speak of. Whether this is a fault with the particular archive I had or a general problem with the software remains to be seen.

TagBBS is controlled entirely from a large (22Kb) control file which sets out all the download and message structures and security ratings to be used by the system. Support is also provided for "doors",

Soft-Span BBS (C) 1989 Mark Wolfkehl

Help System

- 1) General BBS operation
- 2) Reading / Posting Messages
- 3) Electronic mail
- 4) Changing parameters
- 5) File transfer
- 6) Operation of the tty editor
- 7) Additional information

Enter 1-7 or 0 when done >

Soft-Span's comprehensive help system

new files are placed. The system has an interesting method of allowing the sysop to determine which machine an upload is for. When a file is uploaded, the machine it is aimed at is placed in the comment field for that file. When the sysop comes to add the file to the directories he can check the comment field to find out which directory he should put it in.

Figure 3 shows a couple of example entries from the DLOADS file supplied with the system.

This small file (see Figure 4 on page 96 for an example), the general configuration file, contains three items - the length the system is idle before timing out and hanging up on an inactive caller, the editors' size buffer and the number of credits given to a user who uploads a file.

MODEM CONFIGURATION

This final configuration file controls the set-up and initialisation of the modem used by the system. Lines allow you to specify initialisation strings, the string required to hang up the modem, the text returned when the modem answers a call, the number of rings before the modem is answered etc.

All of the text files used by the system are available for the sysop to customise, including the help system. Bulletins are available for log-on messages, welcome messages and the main menu text and description.

CONCLUSION

From the users' point of view this is an unusual board. The command line interface is a bit strange but once you have learnt how to move around the board, a process which should only take a few minutes, it is fast. Users who are used to the Amiga CLI will feel at home with the command line style interface, while users in

the traditional command system. Also, most commands have alternate names which you can use instead. The command name which appears in the Main Menu is called a PRIMARY COMMAND. Any alternate command name is called an ALIAS. You can get a complete list of all aliases via the ALIAS command.

When entering data such as at the Main prompt, input is terminated by the RETURN key. You use the BACKSPACE key to backspace mistakes. Also, CTRL-X (Control-X) can be used to delete to the beginning of the line.

At certain prompts, you need only enter a one-character selection. Here, you must choose one of the indicated responses. However, the case of your selection is not important.

The last general type of prompt is the Yes/No prompt which will look something like this: Continue? (Y/N)

Here, you choose Y for Yes or N for No. Again, case is not important.

In certain parts of the BBS, such as viewing messages or obtaining a file listing, you can pause the output by pressing CTRL-S. Once paused, any key continues output. If you hit something other than CTRL-S, output is aborted. In addition, the key you hit will be used by the next input routine. Finally, if you selected to have the [MORE] prompt, output will be halted at the end of every screen of text. You will see [MORE] displayed on the last line. At that point, pressing any key will cause output to continue.

Press any key to continue

...also featuring loads of built-in commands, too bad you can't add any more

configuration programs to learn (other than a text editor) and a moderately configurable system. *Soft-Span* systems will always feel

thorough review this issue but I'll be covering it in full in a future issue. In the meantime there are a number of features which make it worth a look.

Figure 3: Example entries from *Soft-Span's* DLOADS file

```
# Definitions of the download directories
# DIR determines the directory's name
# PATH is the full path to the directory's location
# ACCESS determines the access bit assigned to the directory
# Access bits are in the range of 1 to 16

# NOTE: The end of this file describes the upload directory.
#       Be sure to take a look at it

# This is the directory name
DIR UTIL
# This is a brief description
DESC Amiga useful files/utilities
# This is the path to the directory
PATH soft_span:dl/AmiUtil
ACCESS 1 ; Assign access bit 1

# The upload directory
# Must be called UPLOAD

DIR UPLOAD
DESC Upload Directory
PATH soft_span:UL
ACCESS 16 ; Access bit 16- only for the sysop!

# NOTE: This type of access lets you examine the upload
# directory and download from it like any other directory.
# You will not want to give the general user this type of
# access
```


external software called from within the BBS to provide facilities not built into the software, games being the most obvious application.

From what I've seen *TagBBS* seems to be very good, and I will be trying to get hold of a working system and provide some more information next month. In the meantime if you

BBS system will be difficult to handle in such a terrible implementation.

HARE BASIC

HiSoft Basic is much better, it's compiled, which means it's quick and it has a reasonable editor. A new version should be on its way which ought to make things even better.

FILE TRANSFERS

Once you've decided on the language in which you're going to program, you need to explore some of the problems that you're going to encounter. It's best to do this now before you dive in and start programming, otherwise you're going to get stuck.

The first problem area is file transfers. You need a way of getting software to and from your callers. The Amiga is blessed in this respect in that it has a set of protocol libraries called XPR libraries. These libraries provide various transfer protocols including (most importantly) *ZModem*.

ZMODEM PROTOCOLS

It doesn't matter what else you do with your board, it must provide *ZModem*. This is the only sensible protocol nowadays, all software supports it and so should all BBS systems. With XPR protocols it is relatively easy to call functions to provide download facilities, and they're usually free. Think yourself lucky, the PC scene is not advanced enough to have this sort of facility yet.

DATABASE DEALINGS

The other major section of a BBS covers how you are going to store your messages. Basically, you want to create a message database that you can access quickly and easily to avoid delays.

THE C SOLUTION

If you're working in C you'll have to write your own database handling code. This isn't the place to go into detail about the techniques, but suffice to say it isn't easy and you should be prepared to spend quite a while working on it.

FOR YOUR EYES ONLY?

An important thing to consider, when you get down to programming your BBS, is whether your system is going to be for your use only or whether you might want to give it to other people, or perhaps even sell it.

If you are going to pass on the system, you need to make certain that other people will be able to customise it if they want to. If the system is for your own use, you can hard wire the menus etc as you want them, but you should still make sure that you can change them if you want to at a later stage.

Of the two options, it is best to keep things to yourself when you're just starting out. Once you have a stable system you can use it as a base to create a configurable system.

SECURITY MEASURES

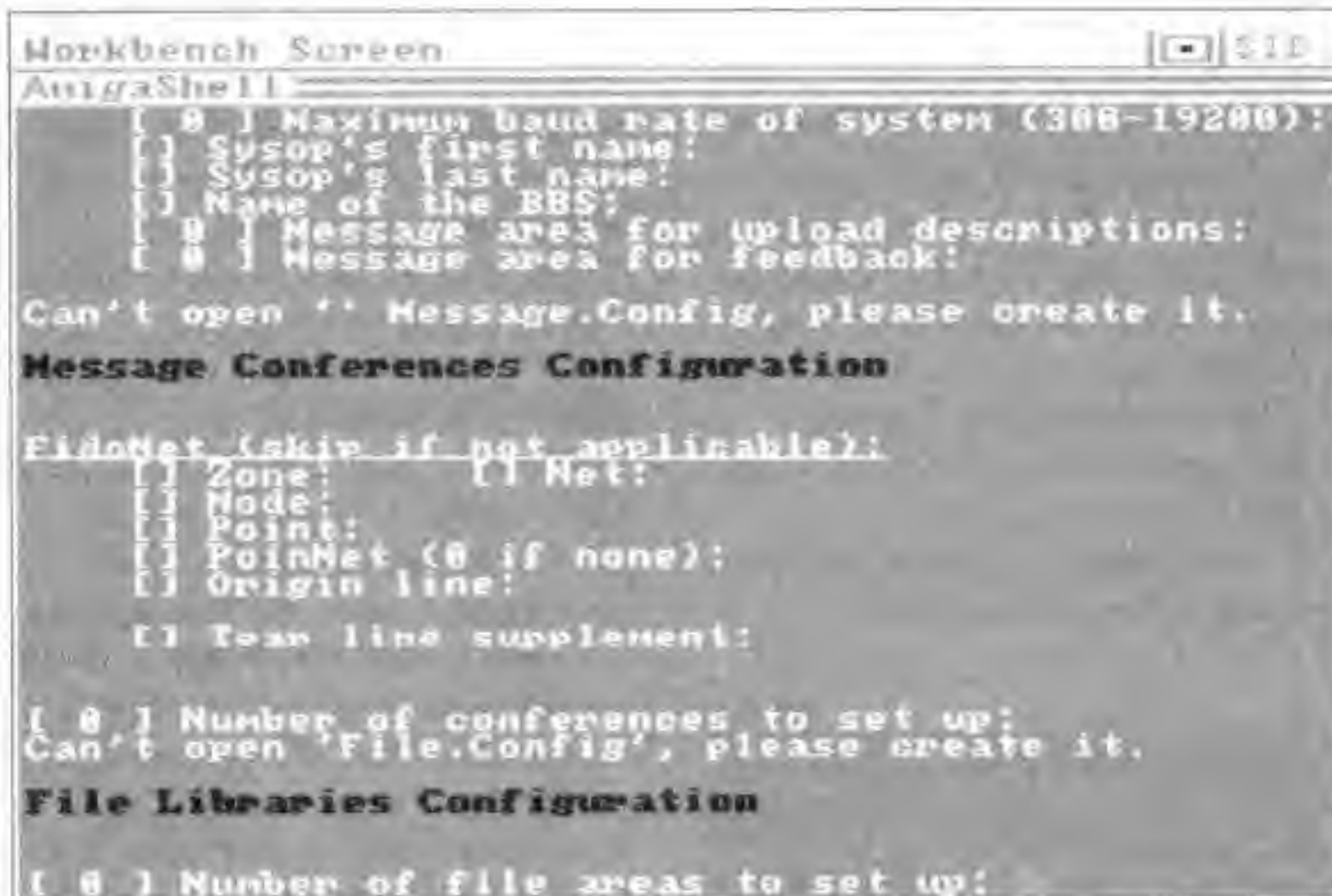
Finally, it's worth spending some time considering the security aspects of the board. Almost complete strangers are going to be dialling in to your board and if you're not careful you could end up with them having access to your machine.

Think about how you are going to stop them, try and put yourself in the users' position. What mistakes are they likely to make? More importantly, if you do get an unsociable caller, how are you going to prevent him from becoming a menace?

PLAN, PLAN, PLAN

If after all that, you still want to write your own BBS, it's time to start planning. Lay out the whole board on paper, think about how you will actually write it. Try to think of original things to add, but don't overdo it, keep it relatively simple for now. There will be plenty of time to embellish your board later.

Once you've planned everything, get coding. But be prepared to run into problems. Don't give up though, persevere – you'll find that writing your own BBS can be enjoyable and rewarding. **AS**



The configuration program for *Transamiga BBS*, not the most user friendly program in the world, but the software itself has got the power, if you've got the patience. # Standard accesses settings

do want to try the program out, it's worth checking the archive before you download it to see if there is documentation.

DO IT YOURSELF BULLETIN BOARDS

Although the easiest way to set up a BBS is to buy a ready-made BBS system, a more fulfilling way of creating your own board is to program one yourself.

Writing your own BBS is not a task to be taken lightly. A BBS is a complicated beast and there are a great many aspects which must be examined and problems which must be solved before you can even start writing the software. Even then, there'll be some time before you have a system that you can use with confidence.

WHAT LANGUAGE?

The first decision will be what language to use. This is really a personal choice but the two main possibilities are a version of Basic and C.

BASICALLY BASIC

Basic will be the obvious choice for most people. There are three options under the Basic heading, either *AmigaBasic*, *HiSoft Basic* or *AMOS* (which is Basic in all but name).

TORTOISE BASIC

AmigaBasic is pretty slow, the editor is terrible and a large program like a

GRAPHICAL BASIC

AMOS is not all that suitable for writing a BBS. It is really aimed at the games/graphics based programming area and BBSs are text-only, apart from the odd splash of colour. *AMOS* is not the language for text applications.

Figure 4: An example of a general configuration file

```
# File for general BBS settings

# Length of idle time for a timeout to occur (in seconds)
TIMEOUT 120

# Size (in bytes) of the editor's buffer
EDBUF 4096

# File credit ratio - currently 3x size of the file uploaded
RATIO 3
```

C WHAT YOU CAN C

C is a much more complicated language than Basic, but it is also far more powerful. It's fast, reasonably compact and allows you access to the power of your Amiga much more readily than Basic ever can.

But all this power takes much longer to harness and a BBS is a complicated program, not something a C beginner should try really.

If you do have some experience of C though, there are no complicated graphic routines required for an Amiga BBS, although the options are there if you wish. A BBS involves a lot of text handling so if you've got plenty of spare time, and don't mind losing a bit of hair, building a BBS can be a fun project.

RANDOM ACCESS

In Basic (whichever one you decide to use), this is most easily achieved by using the built-in random access record handling. This has the disadvantage that it can waste a lot of space but if you pick a sensible limit on the maximum size of the messages the effect can be reduced.

Alternatively you could use your own record handling system, one that doesn't waste as much space.

NEXT MONTH • NEXT MONTH • NEXT MONTH

Thanks go to lewt@CIX and mlednor@CIX for their assistance in tracking down some of the software for me to review this month. Next month I'll be continuing our look at BBS software, in particular commercial BBS systems. Until then, happy modeming.

EXPAND YOUR AMIGA

VISA
SUMMER SALE

QUALITY PRODUCTS
at affordable prices
W.T.S. ELECTRONICS LTD

STOP PRESS:
KICKSTART 2.04 KIT
COMPLETE INCLUDING
FULL MANUALS ONLY £76
IN STOCK NOW



British Made

A500 PRO-RAM BOARD 1/2 MEG UPGRADE

- Latest design incorporates chipmem option at no extra cost
- Increases computer memory from 1/2 Megabyte to 1 Megabyte
- Allows all 1 Megabyte software to run. Now Commodore A500 standard
- Direct replacement for Commodore A501, 16 Chip Technology for complete compatibility.

£16.00 without clock **£19.00** with clock

UPGRADE TO AMIGA 500 PLUS

☆ Upgrade the standard Amiga 500 to ECS chipset A500 plus capability ☆

- | | | |
|----------------------------------|------|--|
| ★ KICKSTART 2.04 | £38 | • Upgrades your existing Kickstart to that of the new A500 plus |
| ★ HIGH-RES DENISE | £33 | • Upgrades your graphic chip capability to that of the A500 Plus inc. anti-flicker |
| ★ 8372 FATTER AGNUS | £38 | • Enables you to access 1Mb of chip memory with standard modification |
| ★ 2MB CHIP MEMORY FOR A500 | £139 | • Enables you to access a full 2Mb of chip memory when fitted to A500, memory included |
| ★ 2.04/1.3 KICKSTART SWITCHBOARD | £24 | • Overcomes software compatibility problems at the flick of a switch |
| ★ KICKSTART 1.3 | £28 | • Allows existing A500 Plus owners to run old software when used in conjunction with switchboard |
| ★ A500 PLUS 1MB UPGRADE | £39 | • Upgrades A500 Plus memory to 2Mb chip memory. |

- | | |
|----------------------------------|-------|
| ★ GVP 52MB A500 HARD DRIVE | £359! |
| ★ GVP 52MB A500 HARD DRIVE + 2MB | £399! |

500RX 2Mb - 8Mb MEMORY EXPANSION

500RX 2Mb **£148.00** 500RX 8Mb **£299.00**
500RX 4Mb **£204.00**

SUPRA MODEMS



- 100% Hayes compatible
 - Tone Pulse auto dial/answer
 - RS232 Interface
 - Internal diagnostics
 - Programmable number storage
- Supra 2400 **£84.00**
Supra 2400 + **£129.00**



A2000 MEMORY UPGRADES
0Mb ... **£109.00**
2Mb ... **£149.00**
4Mb ... **£189.00**
8Mb ... **£269.00**

CUMANA 3.5" EXTERNAL DISK DRIVE



- High quality
- High specification
- Anti click
- Long moulded cable

£48.00

A500 Internal replacement drive **£44.00**
Kickstart 2.04 Kit includes full manuals + disks **£79.00**
GVP 52Mb Hard Drive A2000 **£279.00**

A500 HIGH CURRENT POWER SUPPLY



- Allow addition of many peripherals without damage to computer or power supply
- Switch mode design

£44.95



British Made

☆ All prices include P&P & VAT ☆ Please add £5.00 if you require 24 hour courier to your door or parcel post will be used ☆ 12 month warranty ☆

W.T.S. ELECTRONICS LTD, Chaul End Lane, Luton, Beds.
Tel: 0582 491949

MEGA GAMES PACK

New Amiga 600 MEGA GAMES PACKS

HARWOODS MEGA GAMES PACKS ARE NOW BASED ON THE EXCITING NEW AMIGA A600 RANGE OF 1Mb COMPUTERS AND ARE ONLY AVAILABLE FROM GORDON HARWOOD COMPUTERS... 'The Original Pack Specialists'

ALL OUR AMIGAS ARE UNITED KINGDOM SPECIFICATION AND INCLUDE THE FOLLOWING...

A600FD

1 Mb. Disk Drive, 1Mb RAM, Integral TV Modulator, 4096 Colours, Multi Tasking, Speech Synthesis, 4 Channel Digital Stereo Sound, Mouse, Workbench Disks & Manuals, ALL Connecting Cables, One Great Game from Commodore & Deluxe Paint III

A600HD

Spec. as above but with a 20 Mb. Hard Drive fitted. PLEASE NOTE... Neither the Commodore Game or Deluxe Paint III are included with the A600HD



MEGA
GAMES
PACK



GAMES

1

PACK 1



THAT'S RIGHT HARWOODS HAVE PUT TOGETHER THE ULTIMATE AMIGA PACKS YET AGAIN... STARTING WITH THE MEGA GAMES PACK 1 WHICH INCLUDES SOME GREAT GAMES!

Just look at what you get NOW...

- **AMIGA A600FD COMPUTER WITH A FULL 1Mb. OF MEMORY**
 - **THE LATEST GREAT COMMODORE GAME** - With every A600FD you can look forward to receiving a fantastic leading title supplied by CBM which periodically changes [Supplied with A600FD ONLY not A600HD's].
 - **DELUXE PAINT III** [Supplied with A600FD ONLY not A600HD's]
 - **TAILORED DUST COVER AND MOUSE MAT**
 - **AND A SUPERB HIGH QUALITY MICROSWITCHED JOYSTICK,**
 - **PLUS... 18 MORE GREAT GAMES, THERE'S SOMETHING FOR EVERYONE...**
- BLOODWYCH** - Fantasy role-playing game, great interaction with your computer created environment
- BUBBLE+** - Help the dawdling ghost and the soap bubble, escape from the old deserted manor house
- CAPTAIN BLOOD** - Astonishing creatures and animated 3D graphics, this is a game you just have to play
- ELIMINATOR** - A progressive multi stage flying shoot 'em up, on a long winding course, survive if you can!
- HOSTAGES** - You must get your team and hostages out of the terrorist overrun embassy, without loss of life
- JUMPING JACKSON** - In a deluge of colour and sound save the earth from sadness and melancholy music
- KRYPTON EGG** - A classic Breakout game, 60 screens, separated by 6 combat sequences
- LANCASTER** - Your mission is to fly the classic WWII bomber on its dangerous raids over enemy territory
- LOMBARD RAC RALLY** - You drive your 300 bhp Sierra Cosworth through demanding stages of the rally
- PURPLE SATURN DAY** - Four arcade games, an exciting high speed trip into total cosmic 3D space
- SAFARI GUNS** - Live the African experience in an animal sanctuary, track the poachers & ivory traffickers
- STIR CRAZY** (Featuring Bobo) - Bobo & his inmates are planning a stunning trampoline jump prison escape
- SKYCHASE** - Airborne combat for every simulation fan, in this one or two player game, battle against your MIG flying adversary in your F-16 Falcon.
- SKYFOX II** - Skyfox II, the only ship fast enough to carry on the Skyfox legend. Fight to blow your federation enemies from the Galaxy, at speeds of 9000 kilometres/second!
- STRIKE FORCE HARRIER** - Puts you in the cockpit of one of Britain's most exiting fighter aircraft. Multiple skill levels let you progress to become an ace pilot
- TINTIN ON THE MOON** - We've been captured by Colonel Jorgen and he's trying to scupper the moon mission. Come on Tintin, you're the only one who can save us, and be the first on the moon
- TV SPORTS FOOTBALL** - Strap on your helmet for American football simulation that looks like the real thing.
- XENON 2 MEGABLAST** - This time it's war! The Xenites are back and have thrown time itself into turmoil.

Why not have the Amiga A600HD machine with a 20Mb. Hard Drive instead of the A600FD for only £79.95 EXTRA

Don't Forget... That whilst our Packs always offer superb value and are ideal for most buyers... If you wish to buy a computer without our games and/or accessories, simply call us where we will be only too pleased to offer you THE MOST COMPETITIVE UK DEAL tailored just to suit your needs.

Amiga A500Plus machines may still be available at special prices. Please Phone!

WHY NOT ADD TEN EXTRA GAMES WHEN YOU BUY YOUR NEW AMIGA A600 FOR JUST £10!!! FANTASTIC HARWOODS VALUE!!!
TASTORM, DUNGEON QUEST, E-MOTION, GRAND MONSTER SLAM, RVF HONDA, DRIVIN' FORCE, PIPEMANIA, ROCK 'N' ROLL, SKWEEK, TOWER OF BABEL

A600FD PACK Priced at an INCREDIBLE

£399.95

Including VAT

A600HD PACK FOR AN EXTRA...

That's right have Games Pack 1 with an Amiga A600HD with 20Mb. Hard Drive in place of the A600FD

£79.95

EXTRA Including VAT

We reserve the right to substitute individual software titles or pack items should the need arise.



WHO GIVES YOU?

- Free Courier Collection* and Delivery for warranty service of any major hardware item [1 year]
- 30 days faulty exchange for no charge
- Free standard delivery service
- Exclusive ex-directory technical support line for expert assistance
- Free cable & dust covers with all applicable hardware products
- Over 10 years of expertise with Commodore products
- Most competitive overall prices
- Add all these up - compare with the rest - and you'll see why we are THE SUPPLIER that over 50,000 owners have already chosen
- *Mainland UK

HARWOOD'S BRILLIANT 1Mb AMIGA 600FD MEGA GAMES PACK 2

That's right you get the fantastic Amiga & ALL THE EXTRAS detailed in Harwoods Mega Games Pack 1 AND you also get...

THE PHILIPS CM8833/II STEREO COLOUR MONITOR



Our monitor section on page 3 gives full details for your choice of Philips Monitors & Monitor TVs

MEGA GAMES PACK



MONITOR GAMES PACK



OR... YOU CAN CHOOSE A PHILIPS MONITOR TV for just £20 EXTRA! See page 3 for FULL details of this remarkable Fast Text Monitor TV

£619.95 including VAT

AMIGAHD PACK 2 FOR AN EXTRA...
That's right have Games Pack 2 with an Amiga 600HD with 2Mb. Hard Drive in place of the 600FD. (Now £339.95) (CIB Game & D-Port 9-607 supplied with HD Pack)

£79.95 including VAT

HARWOOD'S GREAT 1Mb AMIGA 600FD MEGA GAMES PACK 3

That's right you get the fantastic Amiga & ALL THE EXTRAS detailed in Harwoods Mega Games Pack 1 (far left) AND... then you also get...

THE SUPERB PHILIPS CM8833/II STEREO COLOUR MONITOR

Our monitor section on page 3 gives full details for your choice of Philips Monitors & Monitor TVs

Plus... THE SUPER STAR LC 200 COLOUR PRINTER...
185/40 cps, Full Colour 9 Pin NLQ Dot Matrix Printer with a FREE Dust Cover & cable to your Amiga (See printer panel for details)



IF YOU WISH, REPLACE THE LC200 WITH A CITIZEN SWIFT 8 COLOUR AT NO EXTRA COST!! OR... IF YOU PREFER A DAPHN COLOUR PRINTER, JUST CHOOSE FROM OUR RANGE & ADD THE DIFFERENCE IN PRICE BETWEEN STARS LC200 & YOUR CHOICE (eg. Citizen 254, will just £30)

MEGA GAMES PACK



MONITOR AND PRINTER PACK



OR... YOU CAN CHOOSE A PHILIPS MONITOR TV for just £20 EXTRA! See page 3 for FULL details of this remarkable Fast Text Monitor TV

£799.95 including VAT

AMIGAHD PACK 3 FOR AN EXTRA...
That's right have Games Pack 3 with an Amiga 600HD with 2Mb. Hard Drive in place of the 600FD. (Now £339.95) (CIB Game & D-Port 9-607 supplied with HD Pack)

£79.95 including VAT

"IT'S THE BUSINESS"

A TRULY PROFESSIONAL PACKAGE SPECIFICALLY FOR THE BUSINESS MINDED AMIGA USER. THIS ONE SHOULD FULFILL EVERY AREA OF HOME BUSINESS YOU'RE LIKELY TO NEED!

THE BUSINESS PACK FROM HARWOODS INCLUDES ALL THE FOLLOWING...

AMIGA 600FD WITH 1Mb. MEMORY

PHILIPS CM 8833/II STEREO COLOUR MONITOR
See Monitor Panel on Page 3 for Details

STAR LC200 9 PIN NLQ FULL COLOUR PRINTER
See Printer Panel on Page 3 for Details

A HOST OF BUSINESS SOFTWARE & ACCESSORIES...
PEN PAL V1.3 (Word Processor)...1Mb.
SUPERBASE II PERSONAL (Database)
SUPERPLAN (Spreadsheet)...1Mb

Plus... A GREAT CBM GAME DELUXE PAINT III Now with ANIMATION

MICROSWITCHED JOYSTICK
10 BLANK 3.5" DISKS
DISK LIBRARY CASE
MOUSE MAT
3 TAILORED DUST COVERS

MEGA GAMES PACK



POWERPRO PROFESSIONAL



OR... YOU CAN CHOOSE A PHILIPS MONITOR TV for just £20 EXTRA! See page 3 for FULL details of this remarkable Fast Text Monitor TV

£869.95 including VAT

AMIGAHD POWERPRO PACK FOR AN EXTRA...
That's right have a Powerpro Pack with an Amiga 600HD with 2Mb. Hard Drive in place of the 600FD. (Now £339.95) (CIB Game & D-Port 9-607 supplied with HD Pack)

£79.95 including VAT

PRIMARY & JUNIOR PACK A

Get your children off to the right computing start with this software learn and play Compendium 6 pack...
KIDS TYPE, WEATHER WATCHER, CALENDAR QUIZ, WORDS & NUMBERS, GAME SET & MATCH.

WHAT IS IT? - WHERE IS IT?
Active, inspiring young minds will love the fun of these 6 entertaining but educational titles. Your children probably won't even realise that their "lessons" have begun!!

HOMERASE
Ideal home storage system. Keep household lists, student records etc. Easy to use "push button" controls.

PRIMARY MATHS COURSE
Around 24 modules in this course from 3 yrs old right up to secondary level. Follows N.C.

READING & WRITING COURSE
24 module course. Teaching from the computer and books. For early starters & the dyslexic.

A GREAT EDUCATIONAL PACK FOR YOUR CHILDREN AT A FRACTION OF THE NORMAL COST

GCSE 'O' LEVEL PACK B

GCSE examination level studies on your Amiga computer that's fun!

MICRO ENGLISH, MICRO FRENCH AND MICRO MATHS
A set of three complete self-tuition courses to GCSE level which can also be used for revision work. All programs adhere to the National Curriculum and were designed and tested in schools by professional teachers.

PEN PAL - Scriptural Word Processor
A fantastic word processor with all the tools you'll need to create effective written work. Ideal for home work, projects etc. or for the families letters. Text wraps automatically around graphics, even as you type! Includes a built-in database and Forms Manager.

HOMERASE
Homebase is the ideal information storage program for things like household lists, student notes, and children's educational projects. Inc. clearly labelled "push button" controls and clear comprehensive reference manuals.

A GREAT EDUCATIONAL PACK FOR YOUR CHILDREN AT A FRACTION OF THE NORMAL COST



EDUCATION



£69.95 including VAT

GCSE 'O' LEVEL PACK B



EDUCATION



£89.95 including VAT

Compare our Service

Before you choose from whom to purchase, please phone us. We are always happy to discuss your requirements, and answer any queries you may have...

- ORDER BY PHONE:** Phone our Order Hotline with your Access, Visa, Mastercard, Switch or Lombard Creditcharge Card quoting number & expiry date (Dixons, Currys, NASCR and other store cards are Lombard Creditcharge and are accepted by us).
- ORDER BY POST:** Make cheques, bankers building society drafts, or postal orders payable to GORDON HARWOOD COMPUTERS. (Personal business cheques take 7 days to clear from day of receipt whereupon your order will be despatched). Please send Name, Address, and most importantly if possible, a Daytime Telephone Number along with your order requirements. Please check you are ordering from one of our latest advertisements before posting (phone if you require confirmation). Please remember that for example many September publications appear during August, therefore prices you see may have changed (either up or down).
- FREE POSTAL DELIVERY:** FREE within 14 working days. UK Mainland only. OR **COURIER SERVICE:** Add £6.50 per major item for next working day delivery. UK Mainland most regions.
- EXPORT ORDERS:** Most items are available at TAX FREE PRICES to non UK residents and service personnel when visiting (export shipment). Please contact us.

REMEMBER AFTER YOU'VE BOUGHT FROM HARWOODS, WE'LL STILL BE HERE...

TECHNICAL SUPPORT: You will be given our Exclusive Technical Support Phone Number to call should you require any help or advice on any aspect of the system you have purchased.

12 MONTH WARRANTY: Items proving faulty within 30 days of purchase are replaced with NEW UNITS unless otherwise stated. For the whole guarantee period, warranty service will be completely FREE OF CHARGE.

COLLECTION FACILITY: Any computer, monitor or printer requiring warranty service can be collected from your home FREE OF CHARGE during the guarantee period (UK Mainland only) and a FAST turnaround is GUARANTEED by our OWN ENGINEERS!

FULL TESTING PROCEDURE: All computers are tested prior to despatch, and all items are supplied with mains plug and leads as required - just connect up and use straight away.

REMEMBER WE'RE NOT JUST ANOTHER MAIL ORDER COMPANY...

All listed prices are what YOU PAY, and there are NO HIDDEN EXTRAS. VAT and postage are included, and prices are correct at time of going to press (Pack details may vary from time to time). Offers are subject to availability and to being the latest advertised packs and prices. Our offers are NOT supplied on a trial basis.

FINANCE FACILITIES: tailored to suit your needs. Written details on request. Gordon Harwood Computers offer facilities to purchase using our budget account scheme.

APR 36.5% (Variable). Available to most adults of eighteen years or over, subject to status. Applications, required in advance, available to full time U.K. mainland residents and overseas British forces personnel. Showroom visitors, please ask for details of our in-store "Instant Account". Written quotations on request. If you are already the holder of a Lombard Credit Charge Card you can use this to purchase from us (subject to your personal card limit).

VISIT OUR SPACIOUS SHOWROOM: Please pay us a visit where our full range of advertised products & more, is available at the SAME COMPETITIVE PRICES, in the pleasant surroundings at our purpose built showroom (see "opening times") There's plenty of FREE parking close by too!



GORDON HARWOOD Computers

Enquiries & Order Line:

0773 836781

Finance Facilities Available*



GORDON HARWOOD COMPUTERS
DEPARTMENT **ams** /G6, NEW STREET,
ALFRETON, DERBYSHIRE, DE5 7BP
TEL: 0773 836781 FAX: 0773 831040

The Closer you look, The Better we look.



*Credit terms vary, available subject to status. For most products, your own ordering is based at the end of this advert for full details.

FREE Fully Tailored Dust Cover with all Dot Matrix Printers

PRINTERS

CHECK OUR NEW LOWER PRICES

All printers in our range include a standard Centronics/Parallel Port for direct connection to Amiga, PC's, Atari ST's, Archimedes etc. With all our printers you'll get a Free Lead to your computer and with Dot Matrix Printers you also get a Free Quality Dust Cover.

The Harwoods Amiga Help Bulletin provided with ALL printers get you going straight away by covering specific Workbench Set Up Parameters etc.

CITIZEN 1200+ 9 PIN MONO - Up to 120/25 cps £134.95
Very reliable low cost printer with interchangeable interfaces for Centronics/RS232/serial type (C64 etc.) 2 Year manufacturers warranty

STAR LC20 9 PIN MONO - Up to 150/38 cps £154.95
Simultaneous, continuous and single sheet stationery, great paper handling 240 x 240 dpi Graphics Multiple font options

STAR LC200 9 PIN COLOUR PRINTER - 135/40 cps £199.95
80 Column Dot Matrix Push/pull tractor, rear/bottom feeds & Reverse paper feeds Paper park with auto single sheet loading
240 dpi - 9 Pin COLOUR Micro paper feed
16K Buffer, 8 Fonts Colour & mono ribbons 12 month warranty
Front panel programming

CITIZEN SWIFT 9 PIN COLOUR - 180/40 cps £199.95
BK Buffer, 4 Fonts Feed for labels/multi part stationery
Push and pull tractor 240 x 240 dpi Colour Graphics 2 Year Citizen warranty

STAR SJ48 INKJET PRINTER £239.95
64 Nozzle ink jet Optional Ni-Cad battery
Comes with AC adaptor Emulates Epson LQ/IBM 360 x 360 dpi near laser print quality
Large 28K Buffer Proprietary full compatibility

CANON BJ10ex NOW AVAILABLE FROM HARWOODS £229.95
A fantastic near laser quality inkjet printer (spec as SJ48 above)

STAR LC24/200 24 PIN MONO - 220/55 cps £239.95
Mono version of LC24/200 Colour, same spec except for a smaller 7K buffer

STAR LC24/200 24 PIN COLOUR - 220/55 cps £289.95
80 Column Dot Matrix Push/pull tractor & rear/bottom feeds
360 dpi - 24 Pin MONO Paper park with auto single sheet loading Micro paper feed
30K Buffer (expandable) Program from front panel
10 Resident Fonts Supplied with mono ribbon No DIP switches
Front Panel Pitch Select Reverse paper feed 12 month warranty

NEW 24 Pin CITIZEN 224 COLOUR - 160/53 cps £229.95
80 Column Dot Matrix with 4 Fonts Push & pull tractor feeds
360 dpi - 24 Pin COLOUR Complete paper parking facilities
BK Buffer expandable to 32K Supplied with mono & colour ribbons
Easy to use front panel controls Full 2 Year Citizen Warranty

NEW 24 Pin CITIZEN SWIFT 24E COLOUR - 180/60 cps £299.95
80 Column Dot Matrix with 7 Fonts Push/pull/bottom tractor feeds
360 dpi - 24 Pin COLOUR Complete paper parking facilities
BK Buffer expandable to 32K Supplied with mono & colour ribbons
Easy to use LCD panel controls Full 2 Year Citizen Warranty

STAR XB 24 PIN COLOUR RANGE... XB24-200 and XB24-250 - 275/80 cps
Exceptional print quality
4 x 48Pin super letter quality fonts
14 x 24Pin near letter quality fonts
Buffer 29K (XB24/200) & 76K (XB 24/250)
360 x 360 dpi Colour Graphics
12mths on-site warranty (UK Mainland)

HEWLETT PACKARD PANTJET COLOUR A4 INKJET £579.95
For presentation graphics/DTP, CAD and technical/scientific applications
Parallel/Centronics or Serial RS232 I/F (specify with order, MAC option available)
A full page of colour graphics in 4 minutes (typical) Will print transparencies
Non impact printing, virtually silent, 43dba 1Yr on-site warranty (UK Mainland)

STARSCRIPT - 4ppm POSTSCRIPT COMPATIBLE LASER £999.95
A4 Laser Printer, will connect to PC, Amiga, Atari ST, Macintosh etc.
300 DPI, 2Mb. Upgradable to 5Mb. Complete with "Starscript" Serial & Parallel I/F
Emulations inc: HP Series II, Epson (Stars version of postscript) AppleTalk I/F for Macs
EX800, IBM Proprinter & Diablo 630 49 quality fonts 1Yr on site warranty (UK Mainland)

PRINTER RIBBONS

PRINTER	TYPE	BLACK ONLY	COLOUR	BLACK ONLY	COLOUR
CITIZEN 1200+	BLACK ONLY	£4.95	£24.95	N/A	N/A
CITIZEN 124	BLACK ONLY	£4.95	£24.95	N/A	N/A
CITIZEN SWIFT 9	BLACK/COLOUR	£4.95	£24.95	£16.95	£99.95
SWIFT 240E/224	BLACK/COLOUR	£4.95	£24.95	£16.95	£99.95
STAR LC10/200	BLACK/COLOUR	£4.50	£24.95	£6.90	£36.90
STAR LC200	BLACK/COLOUR	£8.95	£24.95	£12.95	£69.95
STAR LC24/200	BLACK/COLOUR	£8.95	£24.95	£14.95	£74.95
STAR XB RANGE	BLACK/COLOUR	£8.95	£24.95	£14.95	£74.95
STAR SJ48 INK CARTRIDGE	BLACK ONLY	Also compatible with Apple Stylewriter and Canon BJ10ex Bubblejet		£15.95 ea.	

PRINTER ACCESSORIES

Citizen 1200+ Sheet Feeder	£19.95	Star LC200 Auto Sheet Feeder	£14.95	Hewlett Packard PantJet Original Printer Accessories	
Citizen 1200+ Parallel Interface	£19.95	Star LC24-10 32K Buffer	£11.95	Black Ink Cartridge (L24) 10	
Citizen 1200+ CBM II/II+ Serial Interface	£19.95	Star LC24-10 Auto Sheet Feeder	£14.95	Colour Ink Cartridge (L24) 10	
Citizen 1240 32K Buffer	£11.95	Star LC200 Automatic Sheet Feeder	£19.95	Single Sheet Printer Paper (L24) 10	
Citizen 1240 Semi-Auto Sheet Feeder	£19.95	Star LC24-200 32K Printer Buffer	£11.95	2-Fold Printer Paper	£19.95
Citizen 1240 Automatic Sheet Feeder	£19.95	Star LC24-200 Auto Sheet Feeder	£14.95	Transparency Paper Pack of 50 Sheets	£19.95
Citizen 1240 Printer Stand	£19.95	Star SJ48 Ni-Cad Battery	£19.95		
Citizen Swift 9 Semi-Auto Sheet Feeder	£19.95	Star XB 24-200 Full Tractor	£14.95		
Citizen Swift 9 Automatic Sheet Feeder	£19.95	Star XB 24-200 Font Cent-Spin TBA	£14.95		
Citizen Swift 9 Printer Stand	£19.95	Star XB 24-200/250 Printer Buffer	£14.95		
Citizen Swift 9K Printer Stand	£19.95	Star XB 24-200/250 Auto Sheet Feeder	£14.95		
Citizen Swift 9K Automatic Sheet Feeder	£19.95	Star XB 24-200 Dual Bin Sht. Feeder	£14.95		
Citizen Swift 24 32K Printer Buffer	£11.95	Star XB 24-250 Full Tractor	£14.95		
Citizen Swift 24 Semi-Auto Sheet Feeder	£19.95	Star XB 24-250 Font Cent-Spin TBA	£14.95		
Citizen Swift 24 Automatic Sheet Feeder	£19.95	Star XB 24-250/250K Printer Buffer	£14.95		
Citizen Swift 24 Printer Stand	£19.95	Star XB 24-250 Auto Sheet Feeder	£14.95		
Citizen Swift 24K Printer Feeder	£19.95	Star XB 24-250 Dual Bin Sht. Feeder	£14.95		
Citizen Swift 24K Printer Stand	£19.95				

BUY TEN GREAT GAMES WITH ANY DISPLAY FOR JUST £1000

MONITORS AND MONITOR TV's

INCLUDES FREE CM8833M £19 STEALTH FIGHTER

Harwoods stock a complete range of both Monitors & Monitor TV's to give you your perfect solution to the type of display to buy.

PHILIPS CM8833/II 14" Stereo High Resolution Colour Monitor £219.95

The ever popular 14-inch Philips CM 8833 MkII. Its versatility means you not only get excellent colour graphics & text performance with a wide range of personal computers, but when connected to a VCR, you get an amazing 600 pixel TV picture. With the 8833 MkII, Harwoods give you the complete set up, to get you going straight away. Monitor, RGB picture and Stereo Audio Cables, Tailored dust cover, and 12 Months on site service warranty. RGB/AD, TTL, Composite Video & stereo audio inputs. Can be used as a TV with VCR or Tuner. Also as a Video Camera display monitor. Retractable stand. Twin Stereo Speakers. Headphone Jack Socket. FREE lead for your computer. FREE 12 Month on site service warranty.

COMMODORE 1084S 14" Stereo High Resolution Colour Monitor £249.95

Commodore's Own Stereo High Resolution Colour Monitor with... RGB/AD/TTL, Composite Video/Audio Inputs. Can be used as TV with VCR or tuner. Twin Speakers for stereo output. Supplied with cables for A500/600, CGA PG, C16-64-128.

PHILIPS 15" FASTEXT TELETEXT TV MONITOR £249.95

SUPERB DEFINITION PHILIPS MONITOR TV. IDEAL FOR AMIGA OR CDTV USERS. GIVING FOR THE FIRST TIME TRUE MONITOR QUALITY FROM A FULL FEATURE TELETEXT TV AT AN AFFORDABLE PRICE! LOOK AT THE FEATURES. Direct Scart Connector for Amiga, CDTV, VCR OR SATELLITE RECEIVER. RGB/AD, Composite Video & audio inputs. FULL TELETEXT FACILITIES (FOR THIS FACILITY EXTERNAL AERIAL SHOULD BE USED). Headphone Jack Socket. FULL TWO YEAR GUARANTEE. 2000 CHARACTER HIGH DEFINITION FST TUBE. SUPPLIED WITH LOOP AERIAL. REMOTE CONTROL. FREE lead for YOUR computer (IF YOU WOULD LIKE THE MONITOR TV IN OUR PACKS 2, 3, AND POWERPRO, AT JUST £20 EXTRA, TO REPLACE THE 8833/II, SIMPLY ADVISE US AT THE TIME OF ORDERING). It's important to remember that most TV Monitors, are still first and foremost televisions, meaning that their average 400 pixel tube display, 50% lower resolution (than a monitor) cannot be guaranteed to display 80 column text clearly without risking eye strain. If choosing a Television Monitor ensure it has the latest 2000 character tube capability, meaning it can handle the Amiga's 80 characters, by 25 line output clearly.

10 GREAT GAMES WITH YOUR TV OR MONITOR FOR ONLY £10 (ie. These games are available with Harwoods Amiga Packs 1, 2, 3, & Powerpro... see details on pages 1 & 2 of this ad!!!)

AMIGA DISK DRIVES

Cumana CAX354 3.5" External 2nd Drive. £54.95
Features include: Long connecting cable. Access Light. 1Mb, (880K Formatted) Capacity. Throughport. Enable/Disable Switch. Compatible with Amiga500/600/1000/1500/2000/3000 and CDTV. NOW SUPPLIED WITH A FREE 3.5" Disk Head Cleaner

GVP 52-420Mb HARD DISK DRIVES WITH MEMORY EXPANSIONS OF UP TO 8Mb.
Capacities of 52 to 420Mb. Connects to sidecar bus (L/H side A500/A500 Plus). Autoboos with Kickstart 1.3/2.0, boot enable/disable switch. Up to 8 Mb of RAM. SCSI Port allows up to 7 other devices to be connected. Supplied with easy to use software. 2 Year Warranty. Dedicated PSU. Mini slot for future expansion. PC-AT Emulator planned to be available for 1992.

GVP AMIGA A500 HARD DRIVES				GVP AMIGA 1500/2000 HARD DRIVES			
RAM SIZE	52Mb.	120Mb.	240Mb.	RAM SIZE	52Mb.	120Mb.	240Mb.
0Mb.	£349.95	£459.95	£729.95	0Mb.	£289.95	£409.95	£639.95
2Mb.	£419.95	£529.95	£799.95	2Mb.	£359.95	£479.95	£709.95
4Mb.	£489.95	£599.95	£869.95	4Mb.	£429.95	£549.95	£779.95
8Mb.	£629.95	£739.95	£999.95	8Mb.	£559.95	£679.95	£899.95

CALL FOR MEMORY UPGRADE PRICES IF YOU ALREADY ARE A GVP OWNER!

AMIGA MEMORY EXPANSION HARWOODS AMIGA 1Mb PRO-RAM PLUS

ADD MORE POWER TO YOUR AMIGA 500 PLUS WITH A FULL 1Mb. UPGRADE!!!

- 1Mb. RAM expansion for the Amiga 500 Plus
- Gives a total of 2Mb. of RAM
- Easily fitted without any dismantling in the trapdoor expansion slot underneath Amiga. DOESN'T invalidate your warranty!
- Low power consumption
- 2 Yr Guarantee!

NEW LOWER PRICE

A GREAT NEW OFFER FROM HARWOODS
Only... **£34.95**

0.5 Mb PRO-RAM

- Compatible with Amiga A500 and 500 Plus
- Gives A500 a total of 1Mb Memory + Clock
- Gives 500 Plus a total of 1.5Mb Memory

Only... **£29.95**

LOOK OUT FOR THE A600FD/HD UPGRADE AVAILABLE SOON!!!

AMIGA CDTV
 Multimedia package
NEW
 Complete value includes:
 CDTV Power
 Amiga keyboard
 Mouse
 3.5" floppy disk drive
 Made in your own Amiga or a big reduction
ONLY £599.95
 PHONE FOR DETAILS

CDTV

CAN, THE CONCEPT OF A NEW, MORE POWERFUL AMIGA...

... MEMORY, AND A COMPACT DISK DRIVE OF ALMOST INFINITE SIZE. A DISK DRIVE SO VAST, IT CAN HOLD MILLIONS OF DIGITS OF DATA. THIS DATA COULD BE, SPEECH, ANIMATED PICTURES, DIGITISED STEREO SOUND, COMPUTER IMAGES OR WHOLE ENCYCLOPAEDIAS... AND MORE.

SEE THIS AND YOU CAN START TO GRASP THE CONCEPT OF CDTV
FREE CDTV STARTER PACK ONLY FROM HARWOODS!!!

IF YOU CHOOSE YOUR CDTV FROM GORDON HARWOOD, NOT ONLY DO YOU GET OUR LEGENDARY SERVICE, BUT WE GIVE YOU A CDTV STARTER PACK, TO GET YOU EXPLORING YOUR NEW WORLD - STRAIGHTAWAY. THIS INCLUDES A SUPERB SELECTION OF CD DISK TITLES INCLUDING THE WELCOME TUTORIAL & HUTCHINSONS ENCYCLOPAEDIA, PLUS ... FIVE GAMES, SHERLOCK HOLMES & THE HOUND OF THE BASKERVILLES, SIM CITY, CHAOS IN ANDROMEDA, A TOWN WITH NO NAME, AND THE ACCLAIMED LEMMINGS, WORTH IN TOTAL ALMOST £200.00. IN ADDITION IS A FREE INFRARED REMOTE CONTROLLER. EVERYTHING TO GET YOU STARTED!

£499.95

CDTV ACCESSORIES

Please call for latest availability.

CD 1220 KEYBOARD
 CD 1252 MOUSE
 CD 1200 TRACKBALL

AN 88 KEY QWERTY KEYBOARD **£49.95**
 INFRARED MOUSE WITH BATTERY SAVER **£49.95**
 INFRARED TRACKBALL WITH THE OPTION **£79.95**

CD 1400 CADDY
 CD 1401 MEMORY CARD

OF DIRECT CONNECTION TO EXTEND BATTERY LIFE
 DUPLICATES FUNCTIONS OF 2 BUTTON MOUSE &
 INCLUDES TWO 9 PIN PORTS FOR STD. JOYSTICKS
 FOR HOLDING CD WITHIN DRIVE **£9.95**
 PERSONAL RAM CARD CONTAINING **£79.95**

CD 1405 MEMORY CARD

64K OF MEMORY FOR STORING DATA OR AS A
 BOOKMARK FACILITY WITHIN CDTV
 A LARGER PERSONAL RAM CARD, 512K OF **£249.95**
 MEMORY FOR STORING DATA ON CDTV

3.5" FLOPPY DRIVE WITH
 CAPACITY, MATCHING BLACK FINISH. SUPPLIED
 WITH WORKBENCH DISKS/MANUALS etc. **£99.95**
 CD 1301 GENLOCK PAL BASED VIDEO INTER-
 FACE CARD FOR SUPERIMPOSING CDTV IMAGES
 OVER A VIDEO SIGNAL PROVIDED BY ANY STD
 VIDEO SOURCE **£149.95**
 HDCLITE 3.5" DRIVE CDTV COMPATIBLE AND
 AND STYLED IN MATCHING BLACK. **£69.95**

Plus lots of Great CDTV Software in stock!!!

AMIGA SOFTWARE & ACCESSORIES

HARWOODS AMIGA PRO-GEN

NEW LOWER PRICE
 Complete with FREE Multi-
 Cable Connecting Kit!

PROFESSIONAL QUALITY
 GENLOCK FOR COMPUTER
 AND VIDEO MIXING, AT A
 DOWN TO EARTH PRICE!!!

PRO-GEN with
 Photon Paint 2.0 **ONLY £89.95**

MODE SWITCH-BOX FOR PRO-GEN AND RENDALE 8802 GENLOCKS

Supplied With Genlock Extender Cable Worth £9.95
 Switch-box Switches Between Foreground,
 Background, Video And Computer Modes. **£29.95**

MUSIC-X: The ultimate software for professional MIDI sequencing. The software includes a configurable librarian and a synthesiser patch editor. All you need to recreate a song can be recalled from one performance file including sequences, MIDI routing, sync setup, keyboard maps & synthesiser or drum machine patch libraries.

MIDI INTERFACE (5 Port): In, Out, Through plus 2 switchable thru/out. Inc. 2 cables.

AMOS: AMOS allows you to access the power of the Amiga with ease. 500 different commands make AMOS a sophisticated development language. The AMOS animation language allows you to create complex animation sequences. 300 page manual and over 80 example programs **Amos Add on Modules: (BOTH require Amos prog.)**

Amos Compiler **£29.95** Amos 3D **£34.95**

SuperBase 4: Most powerful database available for the Amiga. Combines the ease of use of Superbase 2 with a versatile programming language so that you can tailor your data to your own specific needs for club/business/library records etc.

Lattice C: An ideal tool for the C programmer whether experienced or a novice. The best way to create applications for the Amiga. Fully supports Motorola chipset. Nearly 900 functions optimised to help the user write the lightest possible code. Includes screen editor. Most Amiga C books are based around lattice. (Requires either 2 floppy drives OR a hard disk drive)

Deluxe Paint IV: Paint and animation package, now including HAM mode. (1 Mb, minimum memory or more recommended)

Vidi, The Complete Colour Solution: Vidi with RGB Splitter, Frame Grabber & Digitiser. Grabs moving colour video into 16 grey scale frames (up to 16 frames in 1Mb. Amiga) and digitises from still colour video source in up to 4096 colours in less than 1 second! Requires home VCR or video camera for grabbing. Requires video camera or VCR with perfect pause for digitising. Now comes with Photon Paint 2.0 ABSOLUTELY FREE OF CHARGE!!!

STEREOMASTER: High quality "stereo" sampler (best for sampling instruments etc.) **£39.95**

KCS POWERBOARD IBM PC EMULATOR: Allows you to run many popular IBM PC compatible software titles on your Amiga or Amiga A500 Plus. Hercules, CGA & Monochrome Video Support. Supports Both 3.5 inch & 5.25 inch Diskettes. Fits into A501 RAM Slot, 8088 XT Processor. Clock/Calendar Included. Acts As 512K RAM Exp. When In Amiga Mode. Includes MS-DOS 4.01, Shell & GW-BASIC, DOS-Help, & On-Board Memory. Supports A500 Hard Drive, Mouse Driver Software Included. WHEN ORDERING PLEASE SPECIFY WHETHER YOUR AMIGA IS A 1.3 OR PLUS VERSION MACHINE. **£219.95**

KCS POWERBOARD AS ABOVE BUT WITHOUT MS-DOS 4.01, GW-BASIC, Shell, **£189.95**

POWER MONO SCANNER COMPLETE WITH POWER SCAN SOFTWARE: 100dpi TO 400dpi. Supports up to 64 grey shades. Throughput for printer etc. Supplied with Power Scan software, allows full screen image editing, interface mode on or off, edit true grey scale and even colour images. **£99.95**

SUPRAMEM RX 500 - 2Mb. to 8Mb. RAM Expansion: 2Mb. RAM Vers **£199.95** 4Mb. RAM Vers **£329.95** 8Mb. RAM Vers **£349.95**
 RAM expansion giving massive memory WITHOUT dismantling your Amiga, avoiding the invalidation of warranty. Easily connects to sidecar with bus 'pass-through' for HD's etc.

MIRACLE PIANO TEACHING SYSTEM - Music Keyboard to connect to your Amiga: **£299.95**
 Miracle is the first Piano to teach you how to play it. Whether you want help finding Middle C, or want to learn how to play Mozart, Miracles stunning Amiga Software and Mini Keyboard turns learning into FUN. Study Classical, Rock and even Jazz.

128 Built in Sounds Full sized Touch Sensitive keyboard keys Stereo Sound Get even more from your Amiga
 Miracle even gives you a recording studio Versions for other computers available too, please ask for details

NAKSHA MICROSWITCHED MOUSE: **£24.95** **HIGH QUALITY OPTICAL MOUSE:** **£32.95**

COMPETITION PRO JOYSTICK 5000 Black: **£7.95** **ZIPSTICK JOYSTICK:** **£11.95**

COMPETITION PRO STAR JOYSTICK: The ONLY joystick to obtain a 100% rating from a magazine review! **£13.95**

BLANK DISKS: 10 Genuine SONY 3.5" branded **Only £8.95** 10 Unbranded with library case 3.5" certified **Only £8.95** 3.5" DISK HEAD **£2.99**
 with labels 50 Genuine SONY 3.5" branded **Only £34.95** 200 Unbranded 3.5" certified **Only £19.95** **CLEANER**
 10 Genuine SONY 3.5" 1.44Mb Disks **Only £15.95** 1000 DISK LABELS **ONLY £9.95**

POSSO STORAGE BOXES: **£19.95**

150 piece stackable 3.5" disk storage boxes

ILANX STORAGE BOXES: **£11.95**

60 piece lockable 3.5" disk storage boxes

**MANY MANY MORE ACCESSORIES TOO NUMEROUS TO LIST
 ARE ALWAYS AVAILABLE FROM GORDON HARWOODS.
 Shown here is just a selection of accessories but, if what
 you want is not listed just phone us and ask!!!**



EDUCATION SOFTWARE

**DON'T JUST PLAY GAMES WHEN YOU
 CAN LEARN WITH YOUR AMIGA TOO!**

MICRO MATHS: 24 easy to use programs for GCSE (O' Level) revision or self tuition. **£18.95**
MEGA MATHS: A 9 level step by step tuition course. For mature beginners, 'A' Level studies & Micro Maths users. **£20.95**
MICRO FRENCH: GCSE French tuition or revision course. Covers both spoken & written French. **£16.95**
MICRO ENGLISH: Complete self-tuition programme to GCSE level. **£18.95**
MICRO GERMAN: Complete self-tuition programme to GCSE level. Language Programs also suitable for business users to a high standard. **£18.95**
PRIMARY MATHS: Ages 3 to 12. Complete 24 Prog. Course. **£18.95**
SPELL BOOK: Ages 4 to 6. Developed with the help of a Primary School Head Teacher to aid spelling skills. **£17.95**
HOMEBASE: Home storage prog., ideal for those household lists, childrens educational projects, student notes etc. Easy to use "Push Button" controls and a extensive reference manual. **£19.95**
COMPENDIUM SIX PACK: 6 Great Educational Progs. for children aged 4-12 years of age. Each is designed to keep your child's interest whilst learning. **£29.95**
KIDS TYPE: Large characters & colorful graphics helps creation of stories.
WEATHER WATCHER: Collect & analyse data using graphs etc. even animate your own weather map! **CALENDAR QUIZ:** Quiz based time related events.
WORDS AND NUMBERS: Put words & sentences in the correct order or group numbers. **GAME, SET & MATCH:** Early learning - shapes colours, numbers, coins, sequences and including a "reaction time". **WHAT IS IT? WHERE IS IT?** - Learn names & locations of British counties.

Pen Pal V.1.3

WORD PROCESSOR/DATABASE:
 With Pen Pal you can mix text, 4096 colour graphics & data in ways no other w/p can! It's handling of graphics is unsurpassed. Pen Pal is the only word processor I tested that will automatically wrap text round graphics.

Amiga World,
 July '90

£79.95

PEN PAL complete WITH 512K Amiga
 RAM Expansion **only £199.95!**



BOOK SHOP

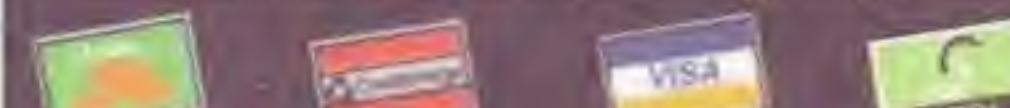
AMIGA FOR BEGINNERS - VOL 1 ABACUS BOOKS: **£12.95**
 From unpacking your Amiga to creating your own icons, includes first use of basic and extras disk. NEW revised version covering workbench 1.3 and 2.
AMIGA BASIC INSIDE AND OUT - VOL 2 ABACUS BOOKS: **£18.95**
 Definitive step by step guide to programming Amiga's in basic.
AMIGA MACHINE LANGUAGE - VOL 4 ABACUS BOOKS: **£14.95**
 Practical guide to learning 68000 assembler language.
AMIGA DOS INSIDE AND OUT - VOL 3 ABACUS BOOKS: **£24.95**
 Guide to Amiga DOS & CLI. NEW Edition Inc. WB 2.0. (Includes Free Help Disk)
AMIGA HARDWARE REFERENCE MANUAL-Addison Wesley: **£21.95**
 Written by technical experts at Commodore Amiga Inc, USA. the people who designed your Amiga. Hardware level machine code programming at advanced level. Includes Kickstart 2.
AMIGA BEST OF TRICKS & TIPS Vol. 17: (Includes Free Disk) **£32.95**
 A complete set of tricks and tips that enable you to do MORE with your Amiga.
GETTING THE MOST FROM YOUR AMIGA (without disks): **£9.95**
 From Future Publishing, the producers of Amiga Format Magazine and fully updated for 1992 OR... available with 2 HELP DISKS INCLUDED **£13.95**

GORDON HARWOOD HARWOOD HARWOOD Computers

Enquiries & Order Line:

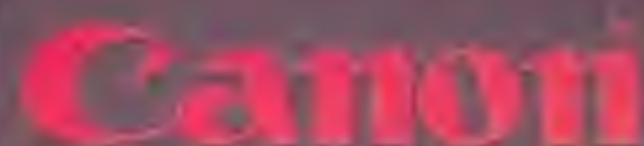
0773 836781

Finance Facilities Available*



GORDON HARWOOD COMPUTERS
 DEPARTMENT **ams** /G6, NEW STREET,
 ALFRETON, DERBYSHIRE, DE5 7BP
 TEL: 0773 836781 FAX: 0773 831040

The Closer you look, The Better we look.



*Credit terms are available (subject to status) for most products: see our ordering panel at the end of this advert for full details

Missing the complete set? – well get your back issues NOW while you can!

ORDER...

1 SOLD OUT

2 Buying a paint package plus reviews of Pagestream, Colourpic, Sequencer 1, KCS Powerboard, and Scala.

3 Accelerating the Amiga plus reviews of Bars & Pipes, Daatascan, ATOrice, DynaCADD and BASIC languages.

4 Buying a printer plus reviews of Pro-24, Real 3D, Wordworth, TEX, Imagine and Superbase 4

5 Amiga Answers special plus reviews of Spectracolor, Superbase 4, Touch-Up, Action Replay, VideoCenter Plus and more

6 The most comprehensive review ever of Amiga word processors, plus the Video Toaster and a free fractals guide

7 SOLD OUT

8 A hardware and add-on buyer's guide special, tons of tips for ProfessionalPage and an in-depth look at the HAM-E colour system

**ONLY
£1.75
EACH**

...DON'T MISS OUT

- 9 The definitive guide to the A500 Plus, down-loading satellite images, choosing sequencers, using video and ProPage 2.
- 10 Special graphics issue featuring the Amiga's top art packages. Audition 4, Sound Enhancer and desktop video directing with Showmaker
- 11 Insight into CDTV, a comprehensive guide to printer preferences, 24-bit graphics, reviews of Genesis, Turbo Print and Stereo Master
- 12 Drive guide special – all the facts and advice on hard drives, quality video output with Impact Vision-24 card, DCTV graphics and more
- 13 FREE Tracey plus special animation tutorial, test drive of Roc Tec's new hard disk, Amiga CD, Pixel 3D, Superbase. A definitive memory guide and the biggest Amiga Answers ever
- 14 Round up of best hand scanners, 5-page special on RAM boards, first in the series on Artificial Intelligence plus reviews of 3D animation packages, RayDance, Expert Draw and a preview of the new Easy AMOS
- 15 PD special – a guide to the most indispensable PD programs and an in-depth review of PD postscript, part two of the series on Artificial Intelligence plus reviews of ImageMaster, SaxonScript, SuperJam and 23 pages of Amiga Answers
- 16 200 Top Tips of essential Amiga advice, a guide to setting up your own bulletin board, programming a neural network plus reviews of Hotlinks, Hit Kit and Professional Calc



...but better still, book up for the year ahead – and never miss out again!



FREE BINDER WORTH £4.95 IF YOU SUBSCRIBE NOW

You get all these benefits when you subscribe:

- You save time
- You save trouble
- You guarantee your copy
- You get it delivered

Subscribe now to ensure your copy each month. For just £17.95 you will get the next 12 issues delivered direct to your home.

SAVE!
on 2-year
subscription

PLUS A FREE BINDER WITH EVERY SUBSCRIPTION

Keep your copies of *Amiga Shopper* safe and protected right from the very start!

only **£4.95**

or free with every subscription

FILL IN THE COUPONS BELOW OR CALL OUR CREDIT CARD HOTLINE ON 0458 74011

YES, YES, YES! I WISH TO SUBSCRIBE TO AMIGA SHOPPER

Please tick the subscription you require *12 issues*

- ☐ UK **£17.95** ☐ EUROPE **£37.95** (Airmail)
☐ REST OF WORLD **£60.95** (Airmail) ☐ WORLD **£37.95** (Surface)

24 issues

- ☐ UK **£33.95** ☐ EUROPE **£69.95** (Airmail)
☐ REST OF WORLD **£109.95** (Airmail) ☐ WORLD **£69.95** (Surface)

Total amount payable £

NAME

TELEPHONE NO

ADDRESS

POSTCODE

METHOD OF PAYMENT *please tick*

- ☐ VISA/ACCESS ☐ CHEQUE

CARD NO

EXPIRY DATE

AS/MAG/09

Please make cheques payable to FUTURE PUBLISHING LTD and send together with this form in an envelope to the following address:

AMIGA SHOPPER, FREEPOST, SOMERTON TA11 7BR

YES, YES, YES! I WISH TO PURCHASE THE FOLLOWING BACK ISSUES OF AMIGA SHOPPER AND/OR BINDER

Please tick the issues you require

BACK ISSUES **£1.75 EACH** ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 8 ☐ 9
☐ 10 ☐ 11 ☐ 12 ☐ 13 ☐ 14 ☐ 15

☐ BINDER **£4.95**

Total amount payable £

NAME

TELEPHONE NO

ADDRESS

POST CODE

METHOD OF PAYMENT *please tick*

- ☐ VISA/ACCESS ☐ CHEQUE

CARD NO

EXPIRY DATE

Please make cheques payable to FUTURE PUBLISHING LTD and send together with this form in an envelope to the following address:

AMIGA SHOPPER, FREEPOST, SOMERTON TA11 7BR

NEW PROMOTION
8833 Mk II Monitor Genuine UK
Model Now with Turbo Challenge II
Promotion. Only **£199** inc VAT



CLEARANCE SALE
EX DEMO A590's **£199**
EX DEMO A500's **£199**

A600
IS EXPECTED
TO DROP IN PRICE
PHONE FOR CURRENT PRICE

DIAMOND

COMPUTER SYSTEMS LTD

DIAMOND'S SALE HAS BEEN EXTENDED TO MATCH HUGE DEMAND

1Mb RAM  **1Mb RAM**

PACK

THE FANTASTIC NEW
AMIGA 600

AS SEEN IN THE COMPUTER PRESS
EVERYWHERE

only £299.00 inc VAT
Or with 8833 Mk II Monitor
+ Turbo Challenge II
Includes connecting lead
only £499.00 inc VAT
WITH FREE HOME MAINTENANCE

Free Deluxe Point & Click game
(while stocks last)

Add £69.95 for extra 1Mb RAM
we cannot be beaten
on price

LIMITED STOCK

1Mb RAM  **1Mb RAM**

PACK

THE EVEN MORE FANTASTIC
NEW AMIGA 600 HD
WITH 20Mb HARD DISK

AS SEEN IN THE COMPUTER PRESS
EVERYWHERE

only £399.95 inc VAT
Or with 8833 Mk II Monitor
+ Turbo Challenge II
Includes connecting lead
only £599.95 inc VAT
WITH FREE HOME MAINTENANCE

Add £29.95 for 1Mb extra RAM
we cannot be beaten
on price
40Mb Hard Disk Version
Add £149.95

LIMITED STOCK

1Mb RAM  **1Mb RAM**

PACK

THE ALL NEW EVERYTHING BUT THE
KITCHEN SINK PACK
NEW AMIGA 600
+ 10 GAMES

Line Of Fire, CarVap, Teenage Mutant Hero Turtles,
Cadaver, Corporation, Shufflepuck Café, Emotion,
Powerplay, Grand Monster Slam,
Tower Of Babel
+ All AMIGA standard features, Mouse etc.
+ Mousemat, Tailormade Dust Cover, Joystick, 10x3.5"
disks, 1 disk storage box
WITH FREE HOME MAINTENANCE

only £349 inc VAT
Or with 8833 Mk II Monitor
+ Turbo Challenge II
only £549 inc VAT
we cannot be beaten
on price

LIMITED STOCK

1Mb RAM  **1Mb RAM**

PACK

600 WORD PRO PACK
AMIGA 600 PLUS

With the NEW
AMIGA 600 H/D with 20Mb hard disk
AND 9Pin Seikosha Printer
+ Transwrite Word Processor
+ All AMIGA standard features, Mouse etc.

WITH FREE HOME MAINTENANCE
only £549.00 inc VAT
Or with 8833 Mk II Monitor
+ Turbo Challenge II
only £745 inc VAT
ADD £75.00 FOR COLOUR PRINTER
ADD £80.00 FOR
QUALITY 24 PIN PRINTER
we cannot be beaten
on price

LIMITED STOCK

**WHY
NOT
GET
YOURSELF
A REAL
COMPUTER?**



AMSTRAD FAMILY PACK

A real 386SX PC running at 20MHz, 4Mb RAM expandable to 16Mb
Large 80Mb Hard Disk, 1.44Mb Floppy (Also reads 720K Disks),
10" Very high resolution colour screen, Keyboard & Mouse, MS DOS & Windows 3.1, Amstrad
Manager Software, Amstrad Counterpoint Software, Ad Lib Compatible Sound Card
2 Speakers, Joystick, & 3 Top Games

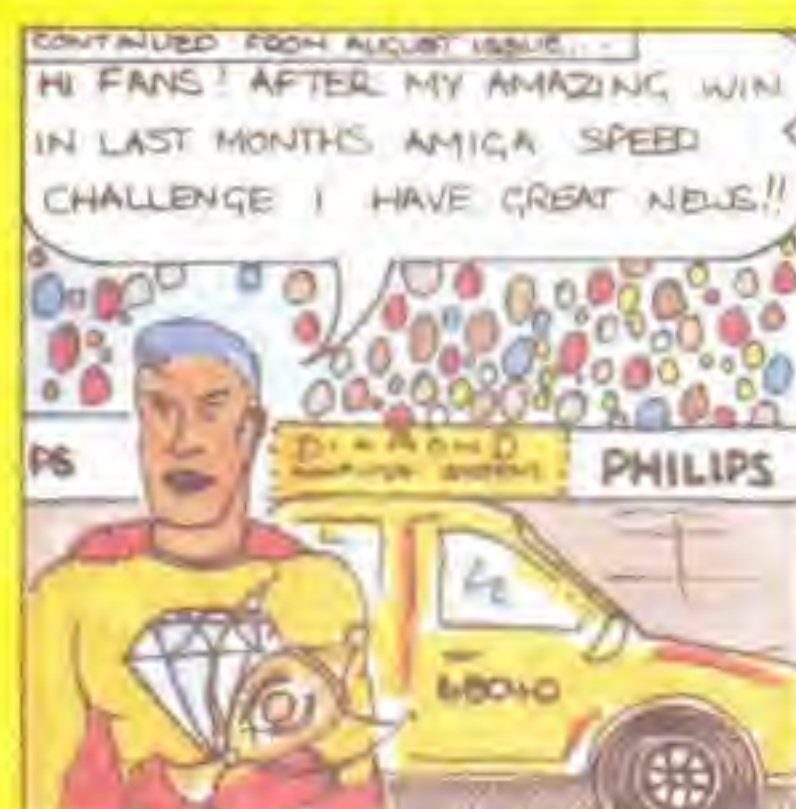
only £799.95 inc VAT

NEW AMSTRAD BUSINESS PACK

As above but with the famous Microsoft Works Software including Spreadsheet, Database &
Wordprocessing PLUS the Canon BJ10EX super quiet inkjet printer

only £1056.33 inc VAT

The NEW Adventures Of CAPTAIN DIAMOND



HITACHI
CCTV CAMERA
ONLY £129.95

WANT A 1500
With Workbench 2.04?
GOT A 500
SWAP IT FOR ONLY £399.95
ALL PRICES INCLUDE VAT



Checkout the price on
PROGRESSIVE PERIPHERALS Products!
Nobody in the UNIVERSE
Can touch Captain Diamond
On Price!

CAPTAIN DIAMOND'S 1500 & 3000 CENTRE

A1500 NEW VERSION

All Diamond's 1500's come with Workbench 2.04 and are also supplied with:- Deluxe Paint III, Home Accounts, The Works (word processor, spreadsheet and database), 3 Games (Puzznic, Toki & Elf), and a book (Get The Best Out Of Your Amiga)

A1500 on its own **£529**
with GVP 8Mb bare board+52Mb Quantum **£819**
with 8Mb 0k RAM board+105Mb Quantum **£978**
A1500+8833 **£729**
A1500 Deluxe
(Includes 1.3 ROM/2.04 ROM & Switcher) **£589**

Out Of Memory?

Try our 8Mb RAM Board for your A1500 or 2000
Aries Board 0Mb **£89**
For each 2Mb RAM add **£69**

AMIGA 3000

The NEW Commodore
AMIGA 3000
25MHz processor, 100 Mb hard
disk, 4Mb Fast RAM, 2Mb RAM.
£1995.00 INC VAT
Phone for PX pricing

GENLOCKS

Rocgen **£89.95**
Rocgen + **£124.95**
Rendale 8802 **£119.95**
G2 **£575.00**
G2+ **£999.00**
Video Pilot **£999.00**

New Philips Editing System
Only **£399.00**

A500 ACCESSORIES

ROCHARD 40Mb **£299.00**

GVP SERIES 2 HARD DISKS

52Mb ONLY **£345.00**
105Mb ONLY **£449.00**

Perfectly matched in colour + style to the AMIGA 500p, 11ms access drive, 1" high drive by Quantum. Room for up to 8Mb of RAM expansion. Cut Off switch for games Expansion 'Mini Slot'. External SCSI port Dedicated PSU and fan. 2 years free warranty.

Add \$65.00 per extra 2Mb RAM
ROCHARD DRIVES ALWAYS IN STOCK

52Mb	120Mb
Ok £349.00	Ok £459.00
2Mb £419.00	2Mb £529.00
4Mb £489.00	4Mb £599.00
8Mb £629.00	8Mb £739.00

286 Emulator **£245**
240Mb **£795**

A530 Accelerator

- ✓ 40MHz 68030EC processor.
- ✓ Hi-speed SCSI interface with 52, 120 or 240Mb hard drive.
- ✓ 1Mb populated Accommodates up to maximum 8Mb of 32-bit wide RAM.
- ✓ Optional 68882 Maths co-processor
- ✓ Optional PC-AT emulation

Accelerator + HD + RAM Upgrade

Plugging a GVP A530 Accelerator onto your A500 or A500 Plus will boost its speed from 7.14MHz to a blistering 40MHz. The A530 will be available with either 52, 120 or 240Mb hard drive and can be upgraded to include an additional maths co-processor, 8Mb of 32-bit wide FAST RAM and much more through GVP's unique "mini-slot".

40MHz 1Mb RAM/52Mb HD **£749**
40MHz 1Mb RAM/120Mb HD **£899**
40MHz 1Mb RAM/240Mb HD **£1099**

Monitors & TV's

8833Mk II + Turbo Challenge II promotion **£199**
Panasonic 1381 multisync **£275**
Philips TV/Monitor **£249**
Philips 3350 51" remote control **£349.99**
Philips 86cm matchline **£2499.99**
100Hz widescreen **£279**
New Philips Designer cube TV/Monitor **£159**
Goldstar TV/Monitor **£159**
Philips 14"SVGA monitor, suitable for use with A3000 or 1500 with flicker fixer **£229.95**

Please add £9.95 for connecting lead

NEW CDI FROM PHILIPS £599

IMPACT II HC8

- ✓ Factory installed hard drives
 - ✓ 52, 120, 240 & 420Mb options
 - ✓ On-board 8Mb mem. sockets
 - ✓ Add up to 6 SCSI devices
 - ✓ Easy To install SIMMS
- These are the equivalent of the HD8+ hard drive, but for the 1500 & 2000 models. Not only are they some of the fastest hard drives available but they also incorporate an unpopulated 8Mb RAM expansion board.

52Mb **£289**
120Mb **£409**
240Mb **£639**
420Mb **£1169**

SYQUEST44/88Mb

- ✓ 44 or 88Mb removable media
 - ✓ 20ms access time
 - ✓ Can be supplied with or without GVP HC8 controller
 - ✓ External case available for A500 or A3000 users
- Each drive comes complete with one cartridge. Syquest drives give complete storage flexibility, offering a quick and easy way to add extra storage to your system.

44Mb bare **£445**
44Mb + HC8 **£545**
88Mb bare **£595**
88Mb + HC8 **£695**

G-FORCE 30-25/40/50

- ✓ 68030EC/68030EC/68030 processor
 - ✓ 25/40/50MHz clock speeds
 - ✓ 68882 Maths co-processor
 - ✓ Expands to 13/16/18Mb 32-bit RAM
 - ✓ 32-bit SCSI controller
- These fast 68030EC/68030 accelerators with memory upgrade and SCSI interface board offer unbeatable speed

25MHz/1Mb **£595**
40MHz/4Mb **£995**
50MHz/4Mb **£1395**

IMPACT VISION 24

- ✓ 768 x 580 PAL resolution
 - ✓ Supports composite video S-VHS & RGB signals
 - ✓ Broadcast quality Genlock
 - ✓ Now with RGB splitter
- This is the very latest 24-bit Professional Video Adaptor. It features 16.7million colours on screen at once, built-in genlock, flicker fixer, frame buffer, frame grabber, and digital keyer. It comes with Caligari IV24 3D, Scala IV24 plus Macro Paint. A1500/2000 requires additional adaptor @ **£49.95**

ONLY £1695

COMPONENT SHOP

HARD DISKS
52Mb **£189.95** IDE **£179.95** SCSI **£279.95**
105Mb **£269.95**
2 year warranty
SYQUEST
Removable cartridge 44Mb 28ms **£299.00**
CONTROLLER for above add **£69.95**

ROM Switcher Now Available
1.3, 2.04 ROM Switcher **£9.95**
1.3 ROM available @ **£29.95**
2.04 ROM available @ **£29.95**

* PX Offer on page 1. Must be in good working condition with 1Mb RAM. Judgement of condition subject to managers discretion

CAPTAIN'S CHIP SHOP

40256K DRAMS
For A500's etc **£3.50**
1X1MB DRAMS For Sup/Supra etc **£3.50**
1x9Mb SIMMS
For NEXUS/GVP/Rochard etc **£34.99**
4x9Mb SIMMS For GVP/NEXUS etc **£159.95**
CIA CHIPS **£14.95**
1.3 ROM **£29.95**

PROGRESSIVE PERIPHERALS
25MHz Motorola 68040. Built-in Maths co-processor. Software compatible with 68000 chips. Expandable to 32Mb RAM. Available with 0, 4, 8, 16 & 32 MB. We are not allowed to print our prices or we'll get sued. For LOW prices contact your local shop.

AVIDEO 24

24-bit graphics for the A500. 768x580 quality resolution. 16.7million colour frame buffer. Small easy to fit circuit board. Fully genlockable. Runs on standard A500 (1Mb chip RAM). Comes with 24-bit paint package (TV Paint). Allows picture in picture **£589**

REMBRANDT
24-bit colour. 16million colours. Fits both A1500/2000 **£1490**
DISK DRIVES
AMIGA Internal **£39.95**
Slimline **£49.95**
Ultra slim **£54.95**
CDTV drive **£64.95**
NEW Rocite Slimline with no click noise & virus protection on track 0. **£59.95**



Captain Diamond has asked me to personally thank everyone who entered his competition last month, 846 in total, it's nice to know so many of you realise that some dealers are just after your money. So remember **YOU CAN'T BUY CHEAPER THAN DIAMOND**

	Obviously we are still not allowed to print the names of the dealers who cannot compete with the mighty Captain Diamond when it comes to the best possible price. (Prices taken from August Amiga Shopper)										Diamond Price
Canon BJ10EX	N/A	N/A	£244.99	£239	£259.99	£229	N/A	N/A	N/A	N/A	£205.56
HP Deskjet Colour	£575.00	N/A	£569.99	£539	N/A	£529	N/A	£559	N/A	£699	£515.82
New 8833Mk II + Turbo 2 game	As this promotion by Philips was based around Captain Diamond's amazing antics on the racing circuit obviously we have the new Christmas promotion before anybody else, hence they can't price it yet. As always Diamond are first again to bring you all the new products.										£199.95
Roclite Drive External with Anti Virus & No Click	IT'S FAST, IT'S FURIOUS, IT'S THE BEST THING TO HAPPEN TO AMIGA THIS YEAR AND IT'S ONLY AT DIAMOND										£59.95
10 Blank Disks	N/A	N/A	£4.99	N/A	£7.99	£7.50	£3.99	£9.95	N/A	N/A	£3.50
Amiga 600	N/A	£399.99	£359.99	N/A	£369.99	N/A	£364.95	£349.99	£379.95	£399	£299
Citizen 224 Colour	N/A	N/A	£244.99	£239	£249.99	£219	N/A	N/A	£229.95	£233.83	£217.37
Pen Pal Word Pro	N/A	£79.99	£53.99	£53	£54.99	N/A	N/A	N/A	£79.95	N/A	£39.95
GVP Series II 52Mb H/D	N/A	£379.95	£354.99	£349	£349.99	£359	N/A	N/A	£349.95	£379	£345

If you bought CDTV and are now living to regret it read on

"..Commodore made multimedia available to the masses with the Dynamic Total Vision (CDTV), but it looks set for dinosaur status in the light of Philips' impressive Compact Disc-Interactive (CD-I). Chris Cain's (Senior Staff Writer PCW) comparison of the two systems gave him the best hardware experience he's had for five years...."

Personal Computer World July 1992

Did you bet on black and it came up red?
Did you buy Betamax when everybody bought VHS?
Have you booked your summer holiday in Yugoslavia?
I bet you've got CDTV.

Well don't worry we won't take the micky anymore because you are not the only person who fell for all the hype, but don't panic, Captain Diamond as always is here to save the day. You can bring your old CDTV into any branch of Diamond until the end of September and we will give you a brand new all singing all dancing CD-I system for

only £399

Due to the excessive demand from last month's adverts for this great product Diamond have not only dropped the price but we have widened the offer to include Amiga 500's & 1500's. So come and see the experts and judge the two systems yourself before making a decision.

WE KNOW IF YOU WANT THE BEST BUY, CHOOSE CDi

MUSIC+
\$44.95

**P/X Your old 500
for a new Amiga 1500
with Workbench 2.04
for only \$399.95
PENPAL \$39.95**



**PART EXCHANGE EX DEMO
AMIGA 500 + 3 MONTH'S
WARRANTY, ONLY \$199.95
EX DEMO A590'S FROM \$199.95
WITH 2Mb RAM \$249.95**

**DISK
ONLY
40p EACH**

CAPTAIN DIAMOND'S PERIPHERALS PAGE

ALL PRICES INCLUDE VAT

APPLICATION SOFTWARE	
Graphics & General	
Advantage	\$44.99
Anim Font 1 or 2 or 5	\$19.99
Art Dept	\$52.29
Art Dept Pro 2	\$139.99
Big Alternative Scroller	\$34.99
Broadcast Tiler 2	\$154.99
Colourburst	\$449.99
Deluxe Paint IV	\$54.99
DigiView Media Station	\$109.00
Disney Animation Stud	\$64.99
Imagine 2	\$194.99
Mediastation	\$119.95
Personal Finance Mgr	\$19.99
Personal Font Maker	\$34.99
Pixel 3D	\$54.95
Presentation Master	\$149.99
ProDraw 3	\$89.99
Professional Calc	\$129.99
Pro Video Post	\$117.60
Real 3D Beginners	\$99.99
Scenery Animation	\$49.99
Spectra Colour	\$39.99
TV Text	\$34.29
Video Director	\$99.99
Vidi Amiga	\$54.99
Vidi Colour Solution	\$139.99
Vistra Pro	\$49.99
Music & Sound	
AMAS 2	\$69.95
Audio Engineer +2	\$149.99
Audiomaster 4	\$44.28
Audition 4	\$34.99
Bars & Pipes Pro	\$156.89
Deluxe Music Const Set	\$49.99
Dr T Copiest Apprentice	\$58.85
Dr T KC5 Level II V3	\$147.09
Jam	\$69.99
Music X 1.1	\$49.95
Perfect Sound	\$39.95
Stereo Master	\$29.99
Sound Master	\$84.99
Techno Sound Turbo	\$29.99
Educational	
Answer Back Jnr	\$15.25
Answer Back Snr	\$15.25
Answer Back Data Disks	
Arithmetic	\$7.69
20th Century	\$7.69
Spelling	\$7.69
World Geography	\$7.69
General Science	\$7.69
Compendium 6	\$26.99
Distant Suns 4.0	\$39.99
Fun School Series	\$15.99
French Mistress	\$15.49
GB Route Plus	\$54.99
Mavis Beacon Typing	\$22.99
Micro Series	\$16.99
DTP & Wordprocessing	
Excellence 2	\$59.99
Gold Disk Video	\$30.50
Kindwords	\$29.99
Pagesetter 2	\$39.99
Pagestream 2.2	\$119.00
Pen Pal	\$39.95
Personal Write	\$19.99
Pro Page 3.0	\$129.00
Quickwrite	\$29.99
Scribble	\$24.95
Transwrite	\$29.99
Wordsworth 1.1	\$79.99
Works Platinum	\$49.99
Development & Utilities	
AMOS or Easy AMOS	\$29.99
AMOS 3D	\$22.99
AMOS Compiler	\$19.99
Blitz Basic	\$69.99
Can Do V1.6	\$64.99
Cross Dos	\$22.99
Dev Pac 3.0	\$49.99
Directory Opus	\$25.99
Diskmaster	\$32.99
Hi Speed Pascal	\$64.99
Home Accounts 2	\$36.99
Hyperbook	\$42.99
Lattice C V5.1 dev sys	\$171.19
Quarterback	\$39.99
Quarterback Tools	\$44.99
SAS C	\$159.99
Superback	\$35.99
Superbase Pro 4	\$299.00
Superbase Pers 2	\$76.49
X Copy	\$30.39

CLUB MEMBERS PRICE ONLY
(These prices are already discounted)

APPLICATION STAR BUYS	
Pagestream 2.2	\$119.00
Pen Pal	\$39.95
Wordsworth 1.1	\$79.95
Home Office Kit - Integrated spreadsheet, Word Processor & Database	\$49.95

DOT MATRIX PRINTERS			
STAR LC20	\$122.20	CITIZEN SWIFT 224	\$199.75
STAR LC 24/10	\$158.62	CITIZEN SWIFT 224 COL	\$217.37
STAR LC 200 COL	\$182.13	CITIZEN SWIFT 24E COL	\$267.90
STAR LC 24/200 COL	\$255.30	CITIZEN SWIFT 24X	\$346.62
STAR XB 24 200 COL	\$374.82	SEIKOSHA SP 1900+	\$111.62
STAR XB 24 250 COL	\$445.32	NEW SEIKOSHA 24 PIN	\$245.57
CITIZEN 124/D	\$179.77	OKI 380	\$198.58
CITIZEN SWIFT 9	\$169.20	PANASONIC KXP 1123	\$163.32
CITIZEN SWIFT 9 COL	\$175.07	NEW PANASONIC	
CITIZEN SWIFT 9X	\$233.82	2180 COLOUR PRINTER	\$199.95
INK JET PRINTERS			
HP PAINTJET	\$632.15	CANON BJ10EX	\$205.62
HP DESKJET	\$334.87	CANON BJ300	\$339.57
HP DESKJET COL	\$515.82	CANON BJ330	\$468.82
STAR SJ48	\$205.62	CANON BJC800	\$1643.83
LASER PRINTERS			
OKI 400	\$586.32		
HP III P	\$821.32		
OKI LASER 800 0.5Mb	\$999.92		
OKI LASER 800 Dual bin 0.5Mb	\$1199.67		
OKI LASER 830 Postscript 2Mb	\$1145.62		
OKI LASER 840 Postscript 2Mb	\$1526.32		
GAMES SOFTWARE			
TOP 10 TITLES			
Sensible Soccer	\$15.59	CLUB MEMBER PRICE ONLY Why don't you join Captain Diamond's Discount Club and save a fortune on all your games Personal callers only Normal saving off RRP 35%	
Monkey Island II	\$22.79		
Jaguar XJ220	\$15.59		
Striker	\$15.59		
Epic	\$17.99		
Myth	\$15.59		
The Manager	\$16.59		
Championship Manager	\$14.99		
Fire & Ice	\$15.59		
Addams Family	\$15.59		
AMIGA BUDGET TITLES			
E-Motion, Dungeon Quest, Shufflepuck Cafe, Tower of Babel, Data Storm, Grand Monster Slam, Powerplay, Soccer, Kid Gloves, Predator 2, Carv-Up, Corporation, Cadaver, Line of Fire, Teenage Mutant Ninja Turtles, Back to the Future III, Gunship, Mike Reads Pop Quiz, Gazza II, Monty Pythons Flying Circus.			
Any 3 Budget titles for only \$10, why stocks last			

LET CAPTAIN DIAMOND PUT YOU IN THE CLUB FOR ONLY \$10

DIAMOND SHOPS AROUND THE UK

232 Tottenham Ct Rd London W1 Tel 071 580 4355 FAX 071 580 4399	443 Gloucester Rd Bristol Tel 0272 522044 FAX 0272 521738	HEAD OFFICE 84 Lodge Road Southampton Tel 0703 232777 FAX 0703 232 679
1045 High Road Chadwell Heath Romford Tel 081 597 8851 FAX 081 590 8959	1022 Stockport Rd Manchester Tel 061 257 3999 FAX 061 257 3997	UK CORPORATE SALES OFFICE TEL 0703 333184 or 0703 336277 FAX 0703 232679 CONTACT SHARON, DAWN/BARBARA EDUCATION/ GOVERNMENT
144 Ferry Road Edinburgh Tel 031 554 3557 FAX 031 554 2115	406 Ashley Road Poole Dorset Tel 0202 716226 FAX 0202 716160	
LONDON CORPORATE SALES Saran Duffy 071 5804355 Fax 071 580 4399		14 DAYS ADD 2% 30 DAYS ADD 5%

HOW TO ORDER

Simply telephone through your order, giving your Access or Visa card number, or send a cheque or postal order to your local dealer.
MAIL ORDER Phone 071 580 4355. Prices include VAT unless otherwise stated.
Minimum Courier Service \$10.00. (Corporate Sales, any order under \$250 subject to \$10.00 Admin charge). Allow 10 working days for cheque clearance. Bankers drafts clear same day. All prices are correct at time of going to press but may change without notice.

THE DIAMOND PRICE PLEDGE

If, whilst buying goods from us, you can show us a better price for the same goods in stock with one of our UK competitors then we will match that price.
 Even if our prices have increased we will honour the price in this advertisement on items in stock as long as you bring this advert with you.
 This pledge applies only to customers relying on this advertisement before the end of the month of publication. It does not apply to competitors prices offered in closing down or stock clearance sales.

**COMMODORE
1084S or 5 STEREO
MONITOR**
Including FREE lead
ONLY £209.00

**PHILIPS 8833 MK II
STEREO MONITOR**
Including
Free Lead
ONLY £209.00



COMPUTERS - PERIPHERALS - ACCESSORIES

Open Monday to
Saturday 9am - 6pm
Callers and Mail
Order welcome
Easy parking

**KCS POWERBOARD
PC Emulator
For Amiga A500**

ONLY £179.00

**AT ONCE AMIGA
PC 286 AT EMULATOR
FOR A500**
ONLY £159.00

A600 Now in £360,
A600 Classics £375,
A600HD £459,
A600HD Classics £470

HARD DRIVES

**GVP SERIES II
1500/2000**
52Mb Quantum
Space for 8Mb RAM
£275.00

**GVP SERIES II
1500/2000**
105Mb Quantum
Space for 8Mb RAM
£389.00

**GVP SERIES II
1500/2000**
120Mb Quantum
Space for 8Mb RAM
£409.00

**GVP SERIES II
A500**
52Mb Quantum
Space for 8Mb RAM
£349.00

**GVP SERIES II
A500**
105Mb Quantum
Space for 8Mb RAM
£449.00

**GVP SERIES II
A500**
120Mb Quantum
Space for 8Mb RAM
£499.00

AMIGA A500 FUN PACK

Amiga A500 Plus, Mouse, Modulator, Manuals, Workbench, Joystick, Disk Box,
10 Disks, Dust Cover, Dpaint III, 1Mb RAM, PLUS 13 GAMES Lemmings,
Simpsons, Captain Planet, Safari Guns, Bubble Ghost, Tin Tin, Purple Saturn Day,
Jumping Jackson, Hostages, Bobo, Krypton Egg, Shuffle Puck Cafe,

ONLY £399.00 inc VAT

KICK OFF 2

£9.50

HOME ACCOUNTS

£9.95

QUANTUM SCSI DRIVE

52 MEG £199.00

105 MEG £289.00

120 MEG £329.00

A500 CARTOON CLASSICS Only £319.00

SOFTWARE

DELUXE PAINT II	£4.35	PIXEL 3D V2	£79.00
AMOS + EXTRAS DISK	£32.00	QUARTERBACK V5	£39.00
BROADCAST TITLER II	£139.00	PRO-WRITE V3.2	£69.00
ULTIMATE DEMO MAKER	£99.00	X CAD 3D	£159.00
DIGIVIEW MEDIA STATION	£119.00	PHOTON PAINT 2	£25.00
LATTICE C V5.10	£149.00	FINAL COPY	£45.00
PAGESETTER V2	£42.00	VIDEO EFFECTS 3D	£99.00
PAGESTREAM V2.2	£127.00	DOS 2 DOS	£28.00
PAGESTREAM FONTS pack	£49.00	Q/BACK TOOLS	£42.00
TV TEXT PRO	£79.00	WORDWORTH	£72.00
CROSS-DOS	£19.00	SUPERJAM	£85.00
SCENERY ANIMATOR	£53.00	REAL 3D BEGINNERS	£99.00
HITACHI VIDEO CAMERA. Ideal for use with DigiView			£199.00
PEN PAL, Excellent easy to use word processor			£53.00
IMAGINE 3D V2.0 Animations & ray-tracing			£179.00
ART DEPARTMENT PROFESSIONAL V2.05			£119.00
DIRECTORY OPUS			£29.95
VIDEO EASE, Video titling package			£35.00
BARS + PIPES PROFESSIONAL			£189.00
AMOS COMPILER, Compile your Amos programs			£23.00
THE WORKS PLATINUM. Integrated package			£39.00
PRESENTATION MASTER			£159.00
VISIONARY Adventure creation language			£53.00
WALT DISNEY ANIMATION STUDIO			£54.00
REAL 3D TURBO/PROFESSIONAL			£269.00
PROFESSIONAL PAGE V2.1 with tutorial video			£115.00
PROFESSIONAL PAGE V3.0 New Version			£129.00

AMIGA A1500

The A1500 inc. Philips or CBM 1084s or 5 monitor, Twin drives, Dpaint3,
The Works Platinum, Home Accounts, 3 Games + Joystick

ONLY £739.00

AMIGA A500 part exchange available - please phone

ACCELERATORS

Microbotics Accelerator VXL-30, 25MHz	£222.00
Microbotics Accelerator VXL-30, 40MHz	£351.00
Speed Merchant Doubles Amiga Speed	£149.00
GVP 68030 25MHZ WITH 1 MEG RAM	£545.00
GVP 68030 40MHZ WITH 4 MEGS RAM	£869.00
GVP 68030 50MHZ WITH 4 MEGS RAM	£1279.00

HARDWARE

386/20 AT Bridgeboard For 1500/2000	£425.00
ROM V2.04 AND ECS DENISE NOW IN STOCK	£34.00 each
ROM V2.04 Upgrade Kit	£85.00
DCTV 24 bit colour graphics	£419.00
ROGGEN PLUS GENLOCK	£125.00
COMMODORE FLICKER FIXER	£229.00
AMIGA COMPATIBLE DISK DRIVE on/off & through port	£57.50
QTEC MOUSE high quality replacement mouse	£22.50
TARGET Mono sound sampling hardware/software	£19.00
NAKSHA SCANNER Excellent scanning quality	£105.00
TV TUNER for Philips and Commodore monitors	£79.00

PRINTERS

STAR LC-24/200 COLOUR inc. free lead	£269.00
STAR LC200 9 pin colour inc. free lead	£189.00
STAR LASER 4 high quality laser printer inc. free lead	£679.00
CITIZEN SWIFT 24E 24 pin colour printer inc free lead	£269.00
CITIZEN 224 COLOUR 24 pin colour printer inc free lead	£239.00
CITIZEN SWIFT 9 COLOUR 9 pin colour printer inc free lead	£189.00
CANON BJ10 EX bubble jet printer inc free lead	£239.00
STARJET SJ48 bubble jet printer inc free lead	£225.00
HP DESKJET 500 inkjet inc free lead	£349.00
HP DESKJET 500 COLOUR inkjet inc free lead	£539.00
CITIZEN 224 MONO 24 pin mono printer inc free lead	£209.00

MEMORY

SUPRA RX500, 8Mb board for A500 with 1Mb	£92.00
SUPRA RX500, 8Mb board for A500 with 2Mb	£117.00
SUPRA RX500, 8Mb board for A500 with 4Mb	£185.00
SUPRA RX500, 8Mb board for A500 with 8Mb	£285.00
MICROBOTICS 8Mb Ram Board for A1500/B2000 with 2Mb	£155.00
EXTRA 2 Mb OF RAM FOR MICROBOTICS	£75.00
A500 512K RAM WITH CLOCK AND SWITCH	£29.00
A500 PLUS 1MB RAM UPGRADE	£39.00
ROM 1.3/2.0 Sharer With Switch (Rom 1.3 £22.00)	£12.00
ROM 1.3/V 2.0 Sharer by Keyboard reset (Rom 1.3 £22.00)	£22.00

MODEMS & FAX

B/Bandit 2400 Modem, V21, V22Bis & MNP 5 (speeds up to 4800)	£105.00
Supra 2400 Plus, MNP5 & V42 Bis (speeds up to 9600)	£129.00
Supra 9600 Fax Modem. Speeds up to 38000	£399.00
Supra 2400 Plus Internal Modem for A1500/B2000	£159.00
Tornado 14400 HST Fax Modem (Speeds up to 57000) NEW IN	£499.00

HOW TO ORDER:
Either call our number
below with your credit
card details, or send
cheque/PO or credit
card details to our
address. Cheques made
payable to
THE 16 BIT CENTRE
Prices subject to change without
notification.

All prices include VAT and Courier Service

16 BIT CENTRE

Units 15-17,

Lancashire Fittings Science Village

Claro Road, Harrogate HG1 4AF

Tel (0423) 531822/526322

**EXTENDED WARRANTY
AND MAINTENANCE
CONTRACTS AVAILABLE
ON ALL ITEMS. PLEASE
CALL FOR FURTHER
DETAILS**



It's clear to anyone who has actually played with the net that I have described over the last few months that it has what we could politely call an erratic performance. The best that we can say is that it tends to produce the taught pattern that is closest in hamming terms to the test pattern you entered. Why is this?

NEVER TRUST THE BIG BOYS

Well, that isn't strictly what I mean. "Never take the Big Boys completely on trust" would be more like it. The layout of this net is based on a description in Professor Igor Aleksander's excellent book *An Introduction to Neural Computing* (Chapman and Hall, £15.99). The thing is that it doesn't quite work as well as he claims it will. He reckons that a net built to this spec will always find the closest (hamming-

"The split in the neural levels mirrors the kind of split we find in the human body."

style) pattern. The net has a good go, but sometimes, as you will probably have noticed, it makes mistakes.

For example, if the net is taught the letters 'T' and 'H', and then tested on the pattern (1,1,1,0,0,0,1,1,1) – which is a hamming distance of 3 from a 'T' and 5 from an 'H' – then it should always settle on a 'T'. It doesn't. It is perfectly possible to get either a 'T', an 'H', or for it to settle into an endless loop.

THE ENDLESS LOOP

The endless loop is easiest to explain. It usually occurs with test patterns that are equi-distant from the two learned patterns, and it can be understood as the net saying "I don't know!" – which is about the most intelligent response that anyone could make in the circumstances.

However, the fact that you can get it in this case, combined with the other problem that quite often you will get an 'H' where you should get a 'T', indicates a weakness in the mechanism of the net.

If you look at Figure 1 you can see what I mean. This diagram traces the net through various states, given the starting pattern I

mentioned above. It's all to do with the behaviour of the undefined nodes. Remember that they can either output a 1 or a 0 with equal probability. If you follow Path A you can see how the net can get to an 'H', Path B shows the route to a 'T'. You'll have to take it on trust that you can get into a loop from the same position. (Reasons of space, etc. Perhaps if you were extra keen you could work it out for yourself...?)

We would like the net to always choose the path that will reduce the shortest hamming distance, but this purely statistical behaviour means that this isn't always going to happen. What's needed is some sort of explicit controlling principle to prevent the net choosing the wrong path.

HOPFIELD AND
BOLTZMANN

We're not the first to observe this problem, and John Hopfield published a solution back in 1982. He, rather cleverly, imagined that the net has always an energy level associated with it. When the net is given a problem to solve, its energy is said to be high, and when it settles into a solution its energy level is said to be lower than that. So if we get the net to always choose the path that minimises the energy contained in the net, then we will be sure to hit the solution as quickly as possible.

One crude way of doing this in our case would be to find the hamming distances from the test pattern to each of the taught

"Problems in neural computing often have no theoretical objection."

patterns, multiply the two figures by each other, and let that be equal to the energy level of our net. This would mean that in Figure 1 the net starts off with an energy of 15, and aims to settle into the energy state of 0. If we give the net a controller which always chooses the path minimising the energy level, then the net will choose Path B and settle into the correct conclusion.

COMPLEX NETS

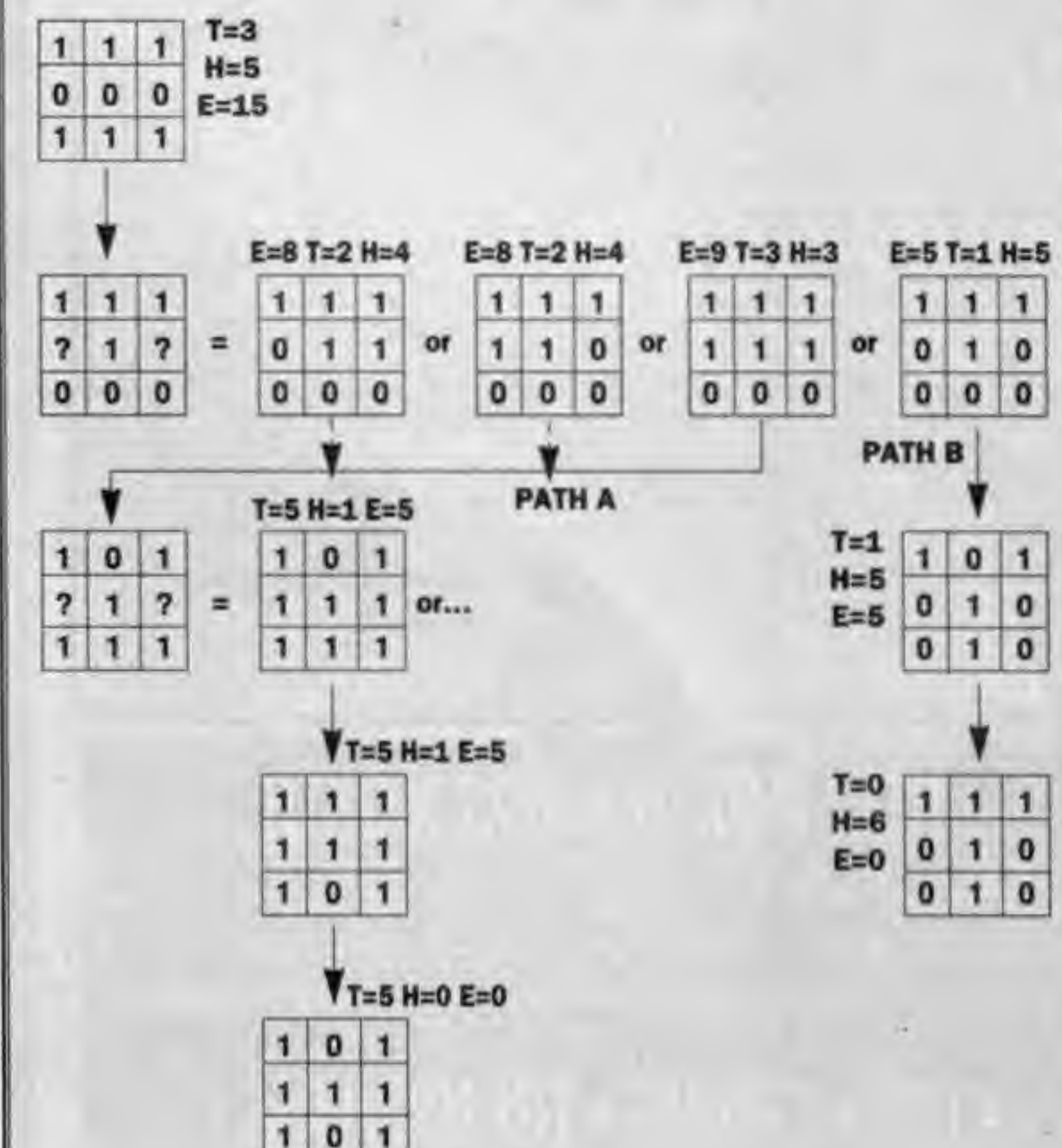
Of course, this isn't the end of the matter. I don't think it can happen with our net, but if the same principle is applied to a more complicated net



Build *a* brain

You've had the theory and the source code for a neural net, now you get the discussion of how well it works and why. Philip Gladwin contemplates the past, present and future of neural networking

Figure 1: Tracing the neural net through its stages – it's as simple as following the arrows (honest!)



then there must be a chance that the net could get into a position where it has only a few options, and none of them reduce the energy in the net. What should happen then?

This position, called hitting a local bottom, or minimum, occurs rather frequently in more complicated nets, and it took a

paper from Geoffrey Hinton in 1986 to offer a solution. Hinton and the people working with him called their new method the Boltzmann Machine after the famous physicist Ludwig Boltzmann, referring to his description of the random movement of particles in a heated gas. The more heat energy particles have, the more they move around. If you apply this idea to the net, and, through a rather large leap of imagination, imagine the process of finding a solution state to be similar to a particle rolling around an uneven plain, with troughs and valleys in the

plain indicating high or low energy states, then the net getting stuck in a local minimum is similar to the particle coming to rest half way to the bottom in Figure 2. A way out of this local minimum would be to 'heat' the particle, or give it some energy of its own, so that it has the ability to leap out of local minima. If it can do this then the

chances are that over a period of time it will make its own way right down to the bottom of the energy plain.

But that's another story, and this is the end of the series. All in all, our net is only a toy, but on the whole it still works rather well. If you're interested in neural nets, and want to see how the really big stuff works, then I can recommend Aleksander's book as being readable and pitched right for the beginner. (It does need a little maths, though, so try to have a look before you buy it). **AS**

"At the moment your average neural net is great at solving problems of classification."

Figure 2: High and low energy as it flows through the troughs and the valleys



NEXT MONTH • NEXT MONTH

Programming grief? Sit back, drink some coffee and let your code evolve until it works. Philip Gladwin starts a guided tour of Genetic Algorithms and shows you how it's done.

• LIFE • CODING • THE UNIVERSE •

NEW GIZMO - OLD HYPE?

If you remember all the fuss about Expert Systems and 4GLs before them, you probably want to dismiss all the fantastic claims about neural nets as yet more marketing hysteria put about by companies with heavy investment to recoup, backed by journalists scrabbling around for the next big sensation. But I wouldn't agree with you. Not completely. Sure, neural nets aren't going to take over the world, but they aren't going to go away either. What will happen is that, like 4GLs and Expert Systems, they're going to reach their fullest potential as integral parts of larger, conventional systems.

For example, imagine a three layer architecture. Begin with a sensory neural layer handling raw input from video cameras, microphones, radar systems etc, passing what it gets on to a cognitive neural layer, which 'comprehends' the input, formulating the instructions or extracting user commands for the third, traditional computer level which is actually running the Management Information System, Rapid Response Battlefield Command System or whatever.

THE HUMAN ANALOGY

This split in the neural levels crudely mirrors the kind of split we have in the human body: we have input devices, like our skin, our eyes and our ears, and we have cognitive apparatus: our brains. Of course, it isn't as clear cut as this in our case, because there isn't the clear division of labour. Our eyes, because of the different types of cones and rods in the retina, perform some analysis before the input is sent along to the brain, so that the signals received there have already had some kind of classification work done to them. Our proposed sensory level should also carry out a similar pre-processing, or primitive feature extraction (eg, detecting the edges forming the outlines of a particular mechanical component in a variety of lighting conditions). Having built a first layer to do this, it makes sense to make it as good at doing this as possible. IT therefore will be a

rather specialised and inflexible thing. The cognitive level will then, like our brains, have the job of adaptation, of learning, of generally making sense of it all and building shapes or concepts, from the primitives it is fed.

SCI-FI OR FACT

It's easy to let your imagination run away with you at this point, and assume that because we can talk easily about these things and just gloss over the massive problems involved in building such a cognitive level, then they're as good as built. This was the downfall of AI in the 80s, and we should be wary of repeating the mistake.

While it's easy to have lots of science-fictional ideas, it wouldn't do to lose sight of the fact that neural computing is still very much in its infancy, and that although there is a strong sense of potential and despite there being some very good working systems around, we are still very much at the beginning of it all.

At the moment your average neural net is great at solving problems of classification, but has trouble when it comes to anything involving sequential processes, such as putting words together to form sentences or recognising a sequence of light patterns that constitute a moving image.

FUTURE PERFECT?

Now it was true for a long time that this was a basic property of the types of neural nets people were using and, therefore, insurmountable.

Then someone realised that you could provide a net with its own macroscopic feedback loops. A net with an architecture like this could take output from one particular instance of recognition and feed it into a slightly different classification problem, rolling forward in the beginnings of sequential processing.

Problems in neural computing are often like this, with no theoretical objection. The thing is that this sort of system doesn't just fall into place off the shelf. However, whatever the difficulties, one thing's for sure, there is a lot of good stuff to come.

SPECIAL OFFER SPECIAL OFFER

AMIGA SHOPPER

**SAVE
£££s**

**Now's your chance
to take advantage
of all the bargains
we've lined up for
you at special
prices, a chance you
can't afford to miss**

MAIL ORDER

Order direct from Amiga Shopper



**PLUS FREE
HOME ACCOUNTS**

when you order Digita Wordworth

DIGITA WORDWORTH

Digita's acclaimed Wordworth word processing package was first reviewed in issue 4, when Jeff Walker said: "Heavens, there's so much to the package." Since then it has been further improved. It comes with a spell checker, a thesaurus, an on-line help facility, and one of the best manuals we've ever seen. It also has a whole load of attractive fonts and, of course, excellent facilities for incorporating graphics into documents.

**ONLY
£89.95**

**Order using
the form on
page 114 or
use our credit
card hotline on
0458 74011**

SAVE SAVE SAVE

DESCRIPTION	PRICE	ORDER
Digita Wordworth	£89.95	SHWORD

GASTEINER OPTICAL MOUSE

SAVE £6

This mouse solves all of those sticking trackball problems – it doesn't have one. Instead it uses solid state technology for trouble-free operation.

DESCRIPTION	PRICE	ORDER
WTS RAM Upgrade	£24.99	SHRAM

SAVE £6

This excellent expansion for the A500 will take your computer up to 1Mb. It has a battery backed-up clock and follows Commodore's guidelines.



RAM UPGRADE WITH CLOCK

DESCRIPTION	PRICE	ORDER
Gasteiner Optical Mouse	£29.95	MOUSE



SAVE £10

Keep complete track of your accounts with your Amiga and Home Accounts 2. With Digita's unique Human Interface Protocol, finance control couldn't be easier.



DESCRIPTION	PRICE	ORDER
Digita Home Accounts	£44.99	SHACCOU

DESCRIPTION	PRICE	ORDER
Connections Interdial M5024 modem	£299.95	CONN INT

This handy little modem will get you into the world of comms with a whizz. With MNP4 error corrections and MNP5 data compression, it will provide data transfer speeds of up to 4,800 bits per second.



INTERDIAL M5024 MODEM

HYUNDAI MODEM

The Hyundai modem is an excellent item for the beginner in comms. It has data transfer rates of up to 2,400 bits per second and supports the V21, V22 and V22bis protocols. You'll also need serial cable and comms software to get started.



DESCRIPTION	PRICE	ORDER
Hyundai HMD2401 modem	£99.95	HYUNDAI

DESCRIPTION	PRICE	ORDER
Technosound Turbo	£29.95	SHTECH

SAVE £10

Yo – sample the action! Technosound Turbo provides everything you need to sample the delights of Amiga audio. Plug it into your printer port, grab sounds, edit them and add amazing effects.



TECHNOSOUND TURBO

SPECIAL OFFER SPECIAL OFFER

DELUXE PAINT 4

The best Amiga painting package just got better! With a host of features at your disposal, you'll create masterpieces

Since the early days of the Amiga, *Deluxe Paint* has held the position of king of the 2D paint packages. In its latest release, it offers even more power to get those pixels painted. HAM mode is now supported, so you can draw with up to 4096 colours on screen at once. Morphing is also supported to enable you to achieve *Terminator 2* style effects. And, of course, there's *Deluxe Paint*'s acclaimed animation system!

DESCRIPTION	PRICE	ORDER
Deluxe Paint 4	£65.95	SHDP4



ORDER BY CREDIT CARD – RING 0458 74011

OR USE THE ORDER FORM ON PAGE 114



ALL PRICES INCLUDE VAT, POSTAGE AND PACKING



BOOKS BOOKS BOOKS BOOKS

**SAVE £2
PLUS
FREE DISK**

MASTERING AMIGADOS 2 VOLUME 1 BY MARK SMIDDY AND BRUCE SMITH – BRUCE SMITH BOOKS

This is the essential book for the beginner to AmigaDOS. It explains step by step everything from the rudiments of opening a Shell and copying a disk to the advanced use of scripts. Special chapters are devoted to custom startup-sequences to help you get the best from your set-up.

MASTERING AMIGADOS 2 VOLUME 2 BY MARK SMIDDY – BRUCE SMITH BOOKS

The second volume in the *Mastering AmigaDOS* range will rapidly become one of your most valuable reference works. It contains an explanation of every single AmigaDOS command, from version 1.2 right up to the new version 2.04.

MASTERING AMIGA SYSTEM BY PAUL OVERAA – BRUCE SMITH BOOKS

Paul Overaa, programming expert and computer journalist, explains in detail how to make use of the Amiga's operating system in your own programs. Learn how to create efficient, operating system-legal code of your own, and to utilise the full power of Intuition.

MASTERING AMIGA PRINTERS BY ROBIN BURTON – BRUCE SMITH BOOKS

Just about everyone has problems with printers and the Amiga. But now, no matter what your set-up – dot matrix, bubble jet or laser – you'll learn how to get the hardcopy results you want with *Mastering Amiga Printers*. This is the definitive Amiga printing guide.



DESCRIPTION	PRICE	ORDER
MASTERING AMIGADOS 2 VOLUME 1	£19.95	SHMAD 1
MASTERING AMIGADOS 2 VOLUME 2	£17.95	SHMAD 2
MASTERING AMIGA SYSTEM	£27.95	SHSYST
MASTERING AMIGA PRINTERS	£17.95	SHPRINT

SPECIAL OFFER SPECIAL OFFER

EASY AMOS

**SAVE
£14**

*Delve with confidence
into the world of
programming with
Europress' Easy Amos.*

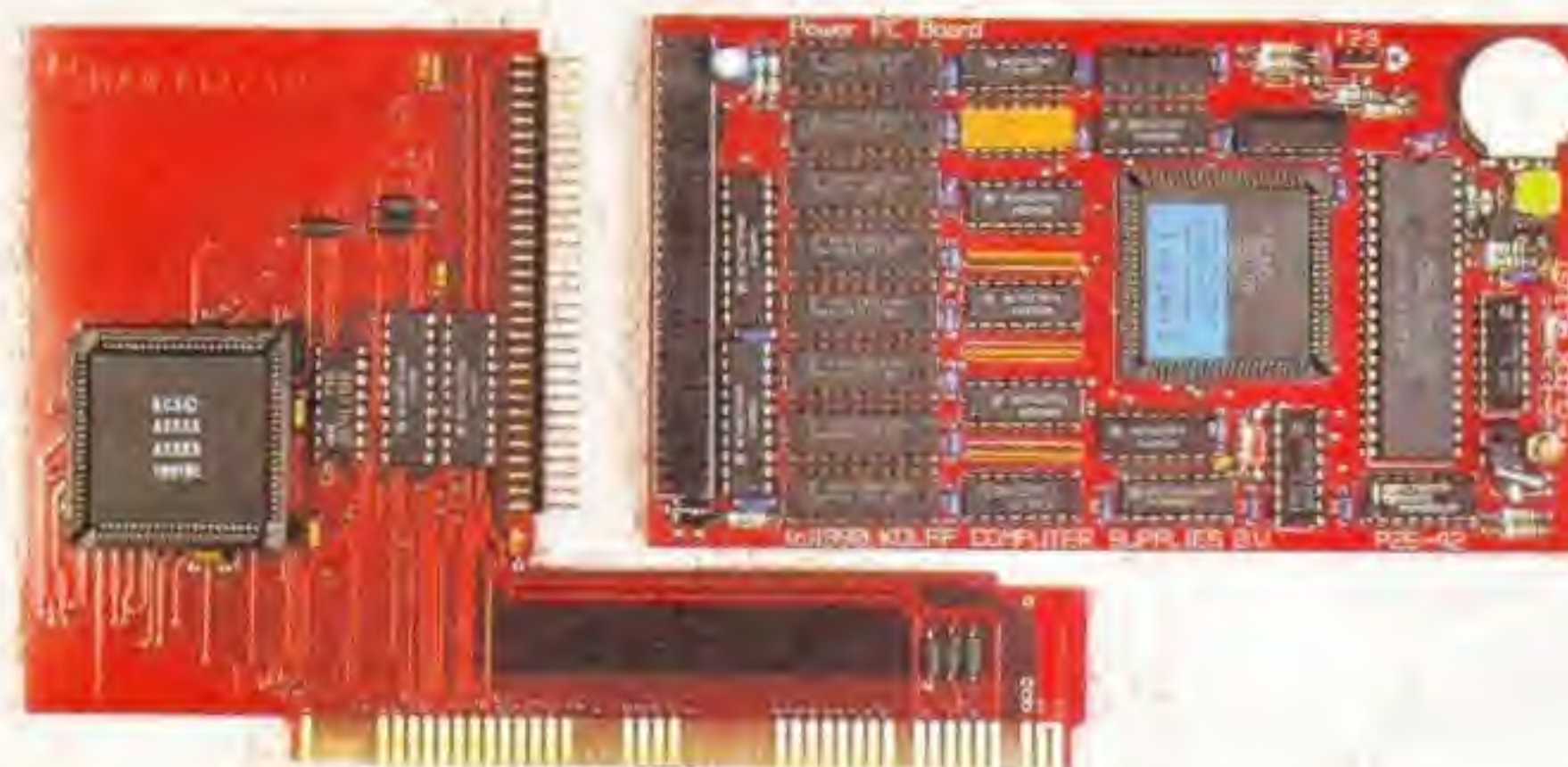
Easy Amos retains all the features that have made AMOS so popular – easy support for graphics, sound and so on – but makes the task of programming so much easier for the beginner with on-line help, tutorials plus much more.

DESCRIPTION	PRICE	ORDER
EASY AMOS	£29.99	SHEASYAM



TURN YOUR AMIGA INTO A PC!

WITH THE KCS POWERBOARD



*Your chance to take
advantage of the wealth
of business software for
the PC, without
changing your
computer! The KCS
Power PC Board plugs
into the Amiga to
provide almost 100%
PC XT compatibility*

The KCS emulator is available as a trapdoor expansion for the A500 and A500 Plus, or with a plug-in card for the A1500/A2000/A3000 series. It comes with 1Mb of extra memory, too

DESCRIPTION	PRICE	ORDER
KCS POWERBOARD PC	£179.95 EXCLUDING DOS	SHPCONLY
	£199.95 INCLUDING DOS	SHPCDOS

SLOTS INTO ANY A500 FOR COMPLETE PC COMPATIBILITY

POWER PC BOARD ADAPTOR FOR 1500/2000

You need this adaptor to plug a Power PC Board into your A1500/A2000. Look with envy no longer at A500 owners – now you too can explore the benefits of the IBM PC compatible world.

DESCRIPTION	PRICE	ORDER
Power PC Board adaptor for 1500/2000	£65.00	SHPCADAP

THEMATIC CLIP ART

Each disk contains between 115 and 270 original, high quality, images for use with Amiga art and DTP programmes - Deluxe Paint, Pro Page, Wordworth, Penpal, etc.

1. Pets
2. Castles, cottages and churches
3. Trees
4. Signs and symbols
5. Wild Animals

£6.99 each - Buy 3 or more for £6 each - Over 900 images for only £30

Inclusive of 1st class P&P



Please make cheques/PO's payable to ARTWORKS.

1, Pond View, Wootton, Ulceby, S.Humberside. DN39 6SF ☎ 0469 588138
Orders normally dispatched within 48hrs or immediately after cheque clearance.

BUILD YOUR OWN ROBOT

With the **AMIGA INPUT/OUTPUT PORT** £27.95
Now you can use your Amiga to switch electric motors, respond to sensors and control robotic devices.

- 11 Outputs for motors etc. Up to 13 inputs for sensors.
- 2 analog inputs. Easy to program in AMIGA BASIC, AMOS, GFA & HISOFT. Simple programming commands: eg TURNON (1), 21 page User Manual.

AMAZING SENSOR & CONTROL EXPERIMENTERS KIT

6 Electronic projects which plug into the I/O port. No soldering required. Includes relay module, motor, tilt sensor, reed switch, light bulb + LEDs, powerful software on disk (available separately for £4) and **FREE "Guide to Amiga Interfacing"**.

£27.95

£1 OFF if purchased with I/O Port

Robotics Construction supplies: Buggy Kit (£39.90), gears, gearboxes, wheels, axles, electric RAM, etc. Phone for details.

TEMPERATURE & LIGHT EXPERIMENTERS KIT

Thermo & Photo sensors which plug into the analog inputs and Amiro! software.

£11.95

MAINS CONTROLLER MODULE

(Standard mains plug and socket). Handles 15 amps.

£15.95

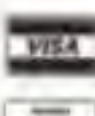
UNCONDITIONAL GUARANTEE

If not completely satisfied, you may return any product within 14 days for a full refund.

Please send cheque payable to SWITCHSOFT or ring Switchsoft on 0325 464423. Prices include P&P. Overseas add £4.

SWITCHSOFT

SWITCHSOFT Dept AS92
26 Ridgeway, Darlington,
Co. Durham DL3 0SF



NORTH-EAST AMIGA-USERS

- * Don't send away for it.....WAIT!
- * Visit our showroom first for.....

- * A500, A600 & 1500 Packs,
- * Books, Software,
- * Upgrades, Spares,
- * Drives, Printers,
- * Accessories
- * Repair Service
- * Advice
- * Demo's
- * Discs

AMIGA



QUALITY OF SERVICE
COMES FIRST AT:

Mon-Sat

9.30 to 5.00

091-510 3300

091-510 3939

Advance Electronics (NE) Ltd

1 Victoria Place, St Marks Road,

Millfield, Sunderland, Tyne & Wear

PROGRESSIVE PERIPHERALS

(U.K. Distributors for Progressive Peripherals & Software)

040 28mhz for 2000/1500 with 4 megs £1275

ZEUS 2000/1500 28 Mhz 040 With 4 Meg And Scsi £1750

SUMMER SPECIAL get a 16 meg ZEUS with with fast SCSI 2 for only £2075 saving £350

SUMMER SPECIAL 25 mhz 040 for 3000/3000T £899

MERCURY 28 Mhz 040 zero K For A3000/A3000T £1350

SUMMER SPECIAL Mercury with 4 megs £1499

PRORAM 64 Meg 32 Bit Dram for A3000/A3000T.

4 meg £349 16 meg £850

NEW 28 MHZ 040 FOR 500/500P With 4 megs £875

SUMMER SPECIAL get the additional 4 megs for £125 works with existing ram so your machine can expand to 17 megs!! Works with 1.3 & 2.04 with 2.04 mounted on board, 68000 fall-back mode works ALL hard drives tested.

The ultimate A500 accelerator.

33mhz 040 chip due out August call for prices all boards

VIDEO BLENDER the ultimate desktop video to rival the Toaster, with genlock, unlimited video effects, multitasking, stereo mixing, luma keying, wiping, black burst, loop through, mixing and many, many more, works all Amiga's, VHSs, Hi8 RGB etc and only £999 for all this!

Recently received rave reviews in Amiga Computing

RAMBRANDT the much talked about 24 bit card now being shipped at £2599 twin frame buffers, 16.7 million colours, 8meg high speed video ram, 24 bit image capturing in real time with 40mhz Texas Instruments 34020 processors and 34082 co-processor, up to 1024 x 2048 resolution (composite only 768 x 576) supports hardware zoom, JPEG compression, run-length encoding, dynamic resizing and many more with a 24 bit 1.5 meg image in less than 3 seconds. Faster with an 040.

Progressive will release a Junior version with one frame buffer, 4 megs ram and other features left out. No date set yet.

FUSION FORTY 040

28 mhz for 2000/1500 4 meg £999 + vat (£1174)
next 4 meg £150 works with your 16 bit ram.

MAGNUM 040 BY CSA

Like the PP & S ZEUS this comes with a Fast SCSI2 interface. It has the option of fast Serial and Parallel ports (User installable) and 20 nanosecond SRAM Expands up to 64 meg.

28 mhz with 4 megs and SCSI £1799 33mhz version £2425

28mhz4 meg with Serial/Parallel ports added £1999 33hz £2599

PROFESSIONAL VERSIONS have addition 1 or 4 meg SRAM at 20 nanosecs and all ports operational starting £2875 Call for prices/options

CALL TO FIND OUT HOW TO TRADE-IN YOUR CSA MEGA MIDGET 030 CARD AND GET AN 040

We Can Offer 030'S, Guaranteed To Those Wanting A Budget 030 At A Sensible Price!

Full Range Of Scsi And Fast Scsi 2 Hard Drives Tape Streamers, Removable Drives And More P.O.A.

A500 & 500P 2 MEG RAM £99

Up To 8 Megs Ram A Co-Pro Socket And Scsi Interface-
Workbench 2.04 Kit, Rom & Manual £65 P&P £4.50

ACCELERATORS UNLIMITED

P.O. BOX 87, LYTHAM St ANNES, LANCS, FY8 5SP

TEL 0253 795796 FAX 0253 736035

OPEN 10AM TO 5PM MONDAY THRU THURSDAY

Mail Order Only-Overseas Welcome

Registered post or courier extra. Prices include VAT
Fluctuation exchange rates mean prices may vary-check first
ACCESS VISA CONNECT SWITCH DELTA cards

FULL RANGE OF C.V.P. SOLD

SUMMER SALE
PROTEXT 5.5
£80 Inc. VAT & delivery
 OFFER CLOSING 31 AUGUST - MAIL ORDER ONLY

PROTEXT 5.5

"you won't be lost for words" . . .

. . . with Protext 5.5 because the pop-up thesaurus will provide you with inspiration whenever you need it. With words provided by Collins the thesaurus has 43,000 main entries and 827,000 responses!

Protext 5.5 introduces enhanced text formatting options. Automatic hyphenation lets you produce a well-spaced page layout without the bother of manually putting in soft hyphens. Protext determines the correct hyphenation points by algorithms and look-up tables. Elimination of widows and orphans is also provided. You will no longer need to worry about those infuriating single lines at the top or bottom of pages. Protext formats the text to avoid these as you edit the text. Extra blank lines at the top of a page can be suppressed.

New document analysis features provide a wealth of information about your text. You can examine a list of all the words used - alphabetically or by the number of occurrences. Other statistics shown include average word length, average sentence length and a table of the number of lines on each page.

Plus many more improvements . . .

- ✧ Enhanced file selector with different sorting methods, bulk copy and erase.
- ✧ Prodata users - mail merge directly from Prodata files, no need to export.
- ✧ Mail merge: nested repeat loops.
- ✧ New window-based help facilities.
- ✧ Improved line drawing.
- ✧ Spelling checker finds repeated word and missing capital letters.
- ✧ Conversion to and from WordStar 5.5 and Microsoft RTF
- ✧ Full printed documentation of new features.

Of course Protext still includes . . .

Choice of pull-down menu or keyboard operation, extensive printer font support and proportional formatting while editing, up to 36 files open, split screen editing, characters for 30 languages, index and contents, footnotes, newspaper column printing, file sorting, macros, indent tabs, mail merge programming language, exec files and the fastest search and replace around. Altogether the most comprehensive word processing software for your Amiga or ST.



"it's bloody brilliant"

ST FORMAT

"one hell of a performer"

COMPUTER SHOPPER

"if you need a professional word processor Protext is perfect"

AMIGA COMPUTING

"nothing else available comes close"

ST APPLICATIONS

PRODATA 1.2

New version of Prodata now with pull-down menus, mouse or keyboard operation, automatic record numbering, merge database, instantaneous filtering, prologue form, edit fields in any order, 2-across label printing. Full details available from Arnor.

Price: £85+VAT, upgrade from v1.1 £30+VAT.

PRICES (including VAT and delivery)

For Commodore Amiga, Atari ST or TT.

Protext 5.5 £152.75

Upgrade from 5.0 to 5.5 £30

Upgrade from 4.2/4.3 to 5.5 £60

Please return your original discs when upgrading

French or German spelling dictionary £35.25

When upgrading please return any extra spell checking dictionaries for a free update to the revised version.

✧ Both Protext 5.5 and Prodata require 1Mb of memory



ARNOR

Arnor Ltd(AMS), 611 Lincoln Road, Peterborough PE1 3HA. Tel: (0733) 68909 Fax (0733) 67299

Mini Office has been compared to the "Skoda Rapide" of computing. Serious users scoffed at it because it was: "cheap, limited and written in Basic". Nevertheless, that didn't stop Europress (then Database) Software selling something like half a million copies since it first arrived eight years ago. This must make it about the best selling home computing product ever – chew on that, doubting Thomas! The Amiga version, like its predecessors, is a fully integrated suite containing: word processor, database and spreadsheet plus graphic and disk management utilities.

You can't expect too much from a package which effectively retails at just over 12 quid per module – but there's more to Mini Office than the price might suggest. My preview copy came on three disks without any form of manual or packaging (so I can't comment on those) but the complete system should be due for release by the time you read this. At the time of writing the main menu had just been completed and was not available for review – but let's take a look at what Mini Office proper will offer...

WORD PROCESSOR

A word processor is probably the most basic piece of business software you could lay your hands on. A word processor is the next step up from a typewriter and with care, can double-up as databases or even a spreadsheet if you have a calculator handy. At the simplest level you will use your word processor to produce letters and reports. Getting more advanced you could use the mail merge to automatically address junk mail to your clients, friends and family.

The early version supplied for review shows promise inasmuch as it will be a basic document processor – like Notepad, only a lot more reliable. Nevertheless, I should point out the promised 50,000+ word spelling checker and Amiga bitmapped font support were not available. Europress promises the final version will have partial WYSIWYG plus support for IFF graphics.

On the plus side, the review copy was more or less complete and boasts features such as adjustable tabs, negative indents, full out and right flush justification, and basic paragraph styles. Fancy features such as decimal and centring tabs are not supported and it is only possible to define 12 tabs altogether. If this sounds like a weakness, ask yourself how many times would you need to use them?

More useful facilities have been included though. Things like autosave, print preview, headers and footers, even automatically incrementing time and dates are all there. The sort of things you actually need – in letter or document templates for instance.

Perhaps the strangest omission is the lack of vertical and horizontal scroll bars. These have been replaced by the VCR-like control panel which graces the spreadsheet and database modules. As an upshot this also limits the screen to 80 characters wide, but again, very few jobs actually need to use a wider carriage.

As Amiga word processors go, this one is not going to win any prizes for power or originality, but nevertheless it is a stable and usable system. Compared to the likes of Wordworth and Protext, it's weak on features, but at least as slick as either in what it does do. Compared to its main competition, Transwrite and Scribble, it comes in a good length in front. Considering also, it comes in a pack costing little more than, say, Kindwords 2 it does represent extremely good value for money.

SPREADSHEET

Although one of the most complicated modules to program, the resultant spreadsheet software is fairly impressive.

On paper at least, the sheet is quite basic – sporting a maximum grid size of just 52 columns by 100 rows. However, with plenty of memory available this does mean 5,200 cells in total – which is quite enough for most applications.

Think of it this way, 52 columns are just enough room to program a

"...adequate for a variety of home and small business applications."

cashflow for every week in the year – and such a thing would be overcomplicated overkill. Put another way, some 'sheets offer 32768*32768 cells and would

Mini Coper

require over a gigabyte of memory, if every cell used just one byte of memory. (I know it doesn't work like that – but you get the gist).

On the down side, block marking (which uses a similar system to Workbench 2) is not accompanied by live scroll. This means you can only drag-mark a block the size of the screen. Typically this means about 22 rows by 5 columns using the

Mark Smiddy previews Europress Software's long-awaited Mini Office for the Amiga – an integrated home business package



Graphics support means you can produce more than just a standard letter – pamphlets and ads included



The Mini Office word processor comes with a selection of features for tidying up your text

default settings. Interlace mode is not supported or required in a simple application such as this one.

Something which beginners will find a real boon are the trigonometric functions (sine, cosine, tan etc). These can be configured to take their arguments in radians or degrees. Why hasn't someone thought of that before, I wonder? In most 'sheets, to find the sine of any angle you would enter something like: =SIN(RAD(A1)). Mini Office cuts out the middleman

and you can enter =SIN(A1). This doesn't appear to affect the recalc speed, but it keeps things simpler. Also, negative values are automatically highlighted in red (by default) rather than the more obtuse brackets; although this is configurable for those who need it.

So what can't it do? Only one window and therefore, only one spreadsheet can be opened at any time; and the window cannot be resized – which seems logical. Power users will find this a limitation, but this is not designed or sold as a power spreadsheet.

Since the graphics module is a separate entity, there are no built-in graphics. Of the four possible data sets (graph information) each one must be defined and saved separately. This is a nuisance but nothing too untoward.

A lot of thought has been put into the design of this module – and it shows; a lot of the gloss has been done away with leaving a usable, friendly application – if such a thing is possible.

I can well imagine anyone with more than a passing need for a spreadsheet will find it perfectly adequate for a wide variety of home and very small business applications. It does not have the clout for scientific needs, but this is typical of Amiga spreadsheets as a whole anyway.

DATABASE

Flat file databases went out with Noah. Come to think about it, there should probably be a law against them – but that doesn't stop *Mini Office* including one. In practice, flat file databases can be very useful and more importantly, many standard relational database systems are used for just that. At this level, a flat file is all that's needed and this is all you get.

Setting up the database is quite straightforward – only a very basic set of field types are supported: Text, Numeric (integer), Numeric (real), Date and Toggle. Times are not supported in this revision. The interface is quite simple to use – you define the form by selecting a starting position for a field and clicking the mouse. This enables you to enter a field name and select its type.

Once this is done, you can start adding and editing records. Being a memory based system however, there is a limit to how many records can be stored. This in turn depends on how much memory is available and how large your template is. The size of each record is governed by what it contains, but there are only 20 rows by 80 columns of screen real estate to use.

Searching the database can be a complex operation, but Europress has spent some time designing a system which can be used with the minimum of fuss. Even fairly complex

By using an index, the application can calculate the index key value from an entry and use that to locate the nearest key value. Also, you can change the sorted order of records by just

changing the key file. None of this is possible with *Mini Office*, but for the money this caveat can be overlooked. Overall, this is probably the weakest of the main three modules, but even so it's still a useful and workable system.

GRAPHICS

The graphics system is an integrated part of *Mini Office*, and not as

you might expect, an internal part of the Spreadsheet module. It offers a number of different charts – pies, bars, lines etc, using up to four separate data sets – and can be used independently or as an adjunct

with positive or negative data sets). It sounds a lot – but what happened to horizontal bar charts, multiple pies, scatters and Hi-lo? Surely these would have been more useful than some of the more obscure variations offered here.

An unusual facility, and one of the advantages of a dedicated module such as this is the ability to edit the data!

"The graphics module enables you to view a gallery of all the available graph types."

Any of the four data sets can be changed, removed – even individual items can be enabled/disabled at will. Besides being incredibly easy to use, this facility is extremely useful and allows far more control over the graph than is normally possible (or practical) with a typical spreadsheet.

Another interesting, and potentially useful feature is manual annotation (labelling). The idea goes something like this... once the graph has been drawn you can recall it and add labels complete with line pointers. It works a little like a crude paint package, but this soon-mastered system is simple and effective. My only complaint is that the labels are bitmapped, rather than object oriented. Once a label has been placed, it cannot be moved, edited or removed altogether.

My real gripe with this one is that the user interface is a bit too crowded. It's all front end and no menus.

Considering the price of *Mini Office*, this crowding is a minor flaw – although it may be something Europress will contemplate for a future revision. Like the rest of the *Mini Office*, this module represents fine value for money is very workable, and quite justifies its inclusion.

DISK UTILITIES

The disk utilities program has to be the odd one of the bunch. Why would anyone include a set of disk utilities with an overtly small business/home office package? The answer is quite simple really – and you only have to read our regular AmigaDOS column to discover why. Although Workbench and AmigaDOS 2 are a great improvement over their



The *Mini Office* spreadsheet offers you a maximum of 52 columns by 100 rows – that's 5,200 cells

searches can be constructed in seconds and although I hate to admit it, the requester is clearer than the one found in Oxxi/Precision's *Superbase*. Search facilities include: "is greater than", "is equal to", "is less than or equal to", etc, plus a "contains" operator for text fields which can be case sensitive or insensitive according to needs.

The worst omission is the lack of a proper indexing system. Indices are more commonly used in relational systems to tie one or more records (in different database files) together. However, they are also useful to find a record by its key value. Let's say you had a database of compact disks – in order



The *Mini Office* database is a perfect means of keeping track of information you'd like at hand...

to the spreadsheet and database modules. The resultant output is more practical than awe-inspiring so

think of it as something that can be used to produce reasonable demographics in a short space of time.

Using a technique also found in top-sellers like *The Advantage*, the graphics module enables you to view a "gallery" of the available graph types. There are 18 in all, although many of these are just variations on a theme.

Realistically, the following charts are offered: Vertical bar (plain, stack, 3D, 3D stack, 3D perspective); Line (independent set, cumulative set, multiple set, cumulative multiple set); Area (normal, multiple, stacked); Pie (3D and normal both



The graphics module offers you more control over graphs than normally possible with a spreadsheet

to find any particular title, you must search the entire database a record at a time.

predecessor, they can still be a bind to handle.

Functionally this is a very basic suite of disk utilities, although it covers the most important housekeeping functions which would normally be carried out by



Graphs can be annotated with a few clicks of the mouse – when you've drawn the graph, simply recall it and label with line pointers...

Workbench or AmigaDOS, namely: Copy, Rename, Delete, MakeDir, DiskCopy and Format. However, although more friendly than AmigaDOS it is nothing like as bomb-proof as Workbench. For instance, it does not look for tagged dot-info files when it performs an operation.

Why is this so important? Well, beginners may (out of ignorance) just copy an application file and omit the accompanying dot-info. When they come to launch the program from Workbench, it will not show up because the dot-info is missing. The same caveat also applies to renaming just the application file or its dot-info file.

This could cause some confusing errors and cause more trouble than it solves. A "Beginner mode" would be useful here, so the program could look for dot-info tags with the same name and perform operations on those too. I should add, *Mini Office's* Disk Utilities is not the only program of its type to suffer with this flaw.

The screen layout is clear and easy to follow – the lack of features helps here – because there is less to complicate and confuse matters. Although this is just an extra freebie, chucked in for good measure, it finishes off the whole suite very nicely and all credit goes to Europress for including it.

CONCLUSION

Mini Office has always been something of an "off the shelf" product – one that quite caught the public imagination at the time of its first release in 1984. As such it is unfair to expect it to perform as a collection of custom built applications you could end up paying more than £300 for.

The design of the user interface

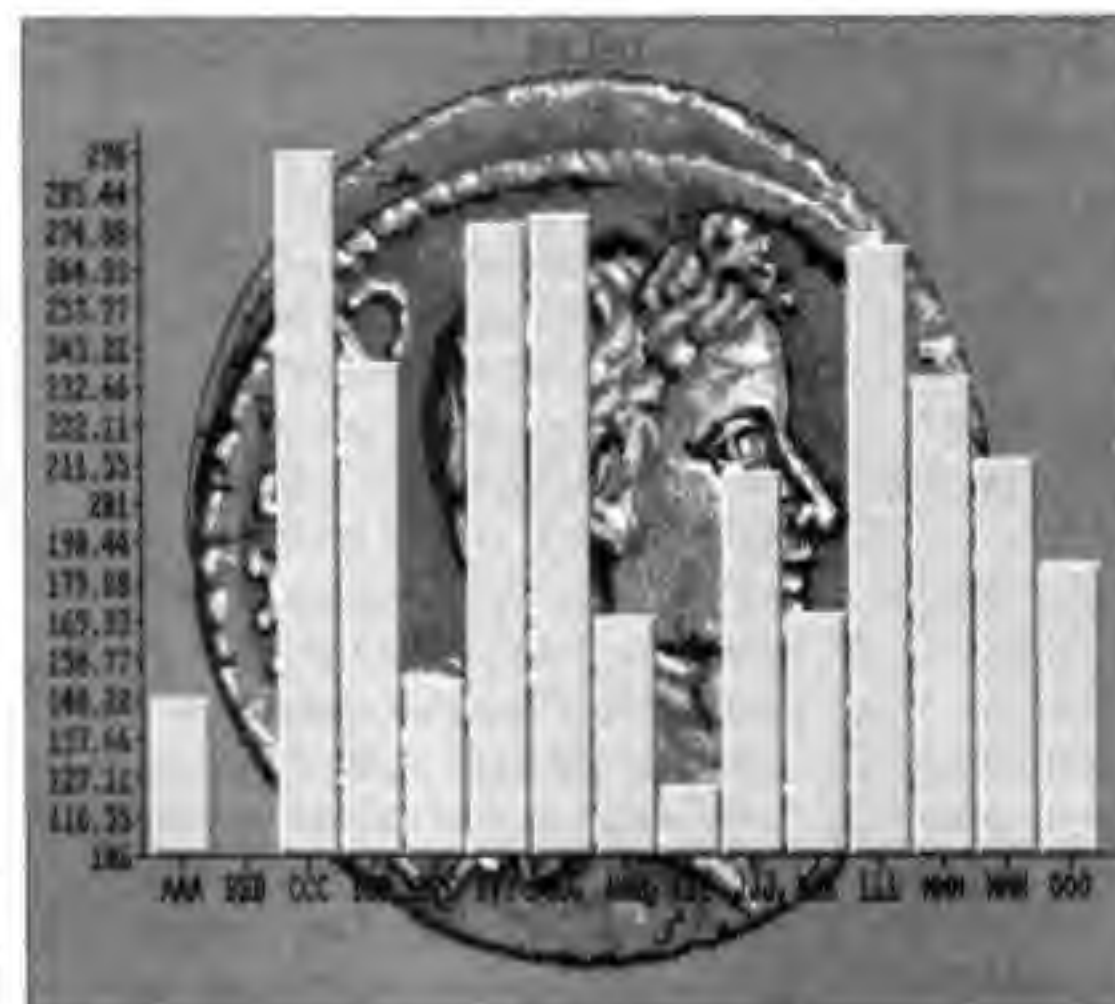
is quite clear, but more attention to detail should have been spent on some functions which are more pretty than they are practical. For instance, all the buttons are active 3D bas-relief – a concept pinched from Windows – but the difference between ON and OFF is not clear. Worse still, functions which have a toggle action work like the radio buttons found in GEM. This is a glaring mistake and the Europress designers would do well to look closely at the

toggle buttons in Workbench 2 before this product is finally released.

Being written in AMOS – an interesting achievement

in itself – means it does not multitask in the way a true Intuition based package would, but this could be a bonus. All that aside, *Mini Office* will find homes in two areas:

- Home users will find *Mini Office* provides most of the functions required for simple jobs – from



A bar chart combined with a picture can achieve some quite professional looking graphs

simple accounts, to letters and simple databases. Also, the disk utilities section is a very worthwhile inclusion for those still having problems mastering AmigaDOS. Overall the purchase price can be easily justified and I have no hesitation in recommending it.

- There has been a rash of small companies popping up in the last four or five years – mainly thanks to the government incentives. However, a computer and associated software form a very large capital expense and one which must be considered

carefully. Amigas can be had on the second-hand market relatively cheaply now, but the same can not be said of the software – even integrated packages can cost over £100. So now you have the choice of

"Mini Office deserves closer inspection from anyone with an interest in serious computing."

a complete system for less than £60. This makes expansion a whole lot more viable because a potential user can expand to more powerful dedicated packages at a later date.

Mini Office is not the best thing since sliced bread – and no longer the innovation it was back in 1984. My biggest moan is the integration is too fused together, too insular if you like. There is no facility to import/export data in anything but the most basic formats and it could be argued that

Europress wants to sell you a product you'll have to stick with; expanding with *Mini Office 2* perhaps?

Take nothing from *Mini Office* Amiga. As it stands, it is excellent value for money and as such, deserves closer inspection from anyone with a vague interest in serious computing. Assuming all the bugs have gone at the time of release, I will have no hesitation in

recommending it to serious beginners everywhere. In fact, I would like to see *Mini Office* in some future Amiga bundle, possibly with the A500 Plus replacement when it arrives – are you listening Commodore? **AS**

SHOPPING LIST

Mini Office..... £59.99
by Europress Software
Europa House
Adlington Park
Macclesfield SK10 4NP
☎ 0625 859444

CHECKOUT MINI OFFICE

Word Processor

Speed ●●●●○
Most operations are very fast – even scrolling.

Functions ●●●●○
A very basic system. Spell checker is a bit too small.

Ease of Use ●●●●○
Everything is where it should be and works well.

Overall rating ●●●●○
A good – if basic – introductory word processor.

Spreadsheet

Speed ●●●●○
Far from fast, but quite usable nevertheless.

Functions ●●●●○
A basic set with all the most useful functions.

Ease of Use ●●●●○
Could be improved in some areas.

Overall rating ●●●●○
Nothing flash but an adequate 'sheet for general use.

Database

Speed ●●●●○
Only average for what is a memory based system.

Functions ●●●●○
Limited compared to other systems.

Ease of Use ●●●●○
A little fiddly in some areas, but nothing to worry about.

Overall rating ●●●●○
Not *Superbase* by any stretch of the imagination.

Graphics

Speed ●●●●○
Surprisingly fast – even when using patterned colours.

Graphic Options ●●●●○
Quite a lot, considering what it actually costs.

Ease of Use ●●●●○
Front end is too flowery – but it works.

Overall rating ●●●●○
Among the best of its genre on the Amiga.

Disk Utilities

Speed ●●●●○
Quite respectable.

Functions ●●●●○
Even *SID 1* had a better selection.

Ease of Use ●●●●○
Clean, uncluttered yet relatively powerful.

Overall rating ●●●●○
Not *Directory Opus*, but a neat inclusion nevertheless.

10 TOP TIPS Writing the next great arcade smash hit

One of the most enjoyable programming tasks you can set yourself is to write a game, preferably a fast, flashy arcade-style one. You might be surprised to learn that the principles behind this sort of game are simple.

We're not going to tell you the nitty-gritty of achieving graphical and audio effects here, which depend very much on the language you choose to use: what we are going to tell you is how to implement the basic structure which is the key to just about every arcade game that has roared and zapped its way across a computer screen...

1 Initialisation – There are actually two stages to this. Firstly, your program must make itself at home as soon as it has begun to run. Setting up a custom screen, loading graphics, samples and sprites, and initialising the high score table are examples of this. Then there must be a secondary initialisation routine that is called at the start of each new game. It will do such things as re-setting the player's score, altering the position of the player's sprite and resurrecting the aliens (or whatever) ready to be killed again.

2 The main loop – The heart of your program will consist of a very simple loop. Execution of the loop will begin after the two stages of initialisation, and continue until the end of the game. It simply calls a succession of routines – move and draw player, move and draw enemies, check for collisions and so on – and, assuming the game isn't over, control will then jump back to the beginning of the loop. The end of the game is usually checked for by looking at a variable which holds the number of lives left to the player. It gets reduced every time an enemy collides with the player, and when it reaches zero the game's up.

3 Player movement – This will probably be the first routine that is called from your main loop. Before moving the player's graphic it must check whether a move is necessary – done by reading the joystick,

Hey...it's summer! Cliff Ramshaw puts down his C compiler, puts up his feet and shows you how life could be a beach all year round...



Does a game like this look like more than you could handle? Well, follow our ten top tips and you'll be well on your way to creating your own masterpiece

keyboard or mouse. Actually moving the player's graphic on the Amiga is fairly straightforward. Because of the clever system of sprites (small user definable shapes that can move independantly of the main screen) movement is implemented by altering the co-ordinates of the sprite representing the player. For instance, to move the player to the right, simply add a value of one to the corresponding sprite's X co-ordinate.

It's worthwhile mentioning that you should keep your control system simple. Most of the really successful games don't trouble the player with much more than a joystick and a fire button. If players find the game too difficult to control, they're going to get bored.

4 Handling enemies – It's best to use the sprite system for enemies too, since it provides the smoothest, easiest method of animation. How you handle the directions they move in depends on the sort of game you're writing. With the likes of *Space Invaders*, all of the enemies move according to a preset pattern – across the screen one way, down a bit, and across the screen in the opposite direction. All you really need for this type of movement is a single variable describing which direction the enemies are moving in 'en

masse'. For enemies which exhibit more intelligent movement (such as those in *Pac Man*), you will need to store information about each enemy's direction separately, probably alongside the co-ordinates of each enemy and, if there are several types with which the player has to deal, the variables detailing which kind of enemy it is. In this case, one of several movement routines will have to be executed depending on this variable's value, with the process being performed several times inside a loop which deals with each enemy in turn. One of the simplest intelligent enemy strategies is where the enemy moves towards the player. The enemy's co-ordinates are checked against those of the player: if the X co-ordinate is lower than the player's then it is increased, if higher it is decreased; similarly for the Y co-ordinate.

5 Shooting – In most games, both the enemies and the player can shoot. This involves the creation of another moving object, along with its own sprite. Most missiles move in a single direction, so all you have to store is the missile's co-ordinates and its direction of travel. Some attempt to move towards the player, as detailed for the enemies above.

Missiles are really a special case of enemies, in that they are moving objects controlled by the computer.

6 Big bangs – Collision detection forms a very important routine. The Amiga's sprite system informs you of any sprites that have overlapped. All your program has to do is decide whether or not it's an important overlap. For instance, a collision between two enemies is usually ignored, whereas a collision between an enemy and the player's missile results in the deletion of the enemy and the creation of an explosion sprite. A collision between an enemy and the player means that the 'number of lives' variable has to be decremented and some sort of re-initialisation has to be done.

7 Plan before you write – As with any program, always think carefully about what you are trying to do before trying to code it. Modifying code to include a brilliant idea you've just had is a right pain.

8 Flash techniques – Try to avoid basing a game around a particularly clever programming technique. It's not the latest graphical techniques doing the rounds in demos that make a good game; it's good gameplay. The simplest ideas are often the best.

9 High scores – Don't forget to include a high score table in your game. It's very easy to implement, and the sense of competition it engenders (whether between friends or with a single player trying to better him or herself) helps make the game that much more addictive.

10 Legalties – Make sure your code is operating system legal. It is possible to gain a slight edge in speed by writing directly to hardware registers and so on, but this is also tantamount to a guarantee that your program won't work on any model of Amiga other than your own. If you make use of Commodore's header files, and use them to call the operating system libraries, you will be assured of compatibility with any future Amigas. **AS**

Cracking the Shell

Mark Smiddy explores complex maths and data array handling in AmigaDOS and begins a two part series showing you how to program your own digital calendar

Zeller's congruence is something of a mouthful after, say, a few pints; anything mathematical brings tears to my eyes. Zeller's congruence is a complex integer-based formula to calculate the day number of the first day in any year from the start of the Georgian calendar (1582) to well into the next millennium, including leap years. It's just as complex to express as a mathematical formula too. Nevertheless, Zeller's mathematical prediction is widely used in applications such as perpetual digital calendars.

The first day numbers (there's seven of them from zero to six) are fixed and it is possible to program say, a watch, with a hundred or so in packed binary (2 values per byte) and use them to fix the calendar. However, that approach is a bit feeble so in this part of Cracking the Shell I'll show how to program the congruence in AmigaDOS with a complete calendar program. As you'll see, the maths are easy, the hard part is making use of the figures!

First though, here is one way to express Zeller's congruence in most versions of BASIC:

```
10 INPUT "Year", Year
20 Century=INT( (Year-1)/100)
30 Decade=Year-1-100*Century
40
Day=(799+Decade+(Decade/4)+
(Century/4)-(2*Century))
MOD 7
50 PRINT "Day number is: "
";Day
```

Looks hair-raising at first glance doesn't it - but it breaks down quite well. Lines 20 and 30 split the year into two parts - the century number (1800, 1900, 2000 etc.) divided by 100; and the decade number minus one. Therefore, 1992 breaks down thus:

```
Century=19
Decade = 91
```

Line 30 uses these values to calculate the number of the first day in January of any particular year. In 1992 for instance the first day is Wednesday, so the result is 3 (where Sunday=0 and Saturday = 6). This is just a piece of simple arithmetic and even AmigaDOS 2 can handle that without too many problems.

The script programs presented here are not suitable for earlier versions of AmigaDOS because of the advanced maths and variable handling, but if enough of you make a fuss, I will attempt to re-program this example for AmigaDOS 1.3.2. This sort of problem is not suitable for AmigaDOS 1.3 because the EVAL

command did not support multiple arguments. Enthusiastic owners might like to try this as an exercise.

HOW IT WORKS: Calendar

Calendar is divided into two separate scripts for speed. The first is a linear script which does all the necessary calculations, the second displays an entire month. It is quite possible to write this program as a single script, but since the printing side performs a lot of backward loops, it is faster to do it this way. Let's take a close look at how the main part works.

1. Defines the arguments. Calendar

LISTING 1: CALENDAR

```
1. .key year/a, month
2. .bra {
3. .ket }
4. .dollar !
5. resident c:eval add
6. set M {month}
7. set Y {year}
8. eval $Y-1 to env:Date
9. eval $M-1 to env:Month
10. echo "$Date" first=1 len=2 to env:Cent
11. echo "$Date" len=2 to env:Decade
12. eval (799+ $Decade+($Decade/4)+($Cent/4)-(2* $Cent))
mod 7 to env:Day
13. eval (($Cent+1) + $Y) mod 4 to env:leap
14. if val $leap NOT EQ 0
15. eval $month * 3 +2 to env:slice
16. echo ".31.28.31.30.31.30.31.31.30.31.31"
first=$slice len=2 to env:DiM
17. eval $month * 4 +2 to env:slice
18. echo "..00..31..59..90.120.151.181.212.243.273.304.334"
first=$slice len=3 to env:Elapsed
19. else
20. eval $month * 3 +2 to env:slice
21. echo ".31.29.31.30.31.30.31.31.30.31.30.31"
first=$slice len=2 to env:DiM
22. eval $month * 4 +2 to env:slice
23. echo "..00..31..60..91.121.152.182.213.244.274.305.335"
first=$slice len=3 to env:Elapsed
24. endif
25. eval $month * 4 +2 to env:slice
26. echo ">T:MFile "Calendar for: " noline
27. echo ">>T:MFile " Jan Feb Mar Apr May Jun Jul Aug Sep
Oct Nov Dec" first=$slice len=3 noline
28. echo ">>T:MFile " $Y"
29. echo ">>T:MFile "
**n=====
30. echo ">>T:Mfile "
"Sun*e[IMon*e[ITue*e[IWed*e[IThu*e[IFri*e[ISat"
31. echo ">>T:MFile "
"====*e[I====*e[I====*e[I====*e[I====*e[I===="
32. eval ( $Elapsed + $Day ) mod 7 to env:Day
33. eval $Day * 8 to env:Space
34. echo ">>T:MFile "
"....."
first=1 len=$space noline
35. setenv daynum 1
36. eval $day to env:wrap
37. eval $DiM + 1 to env:DiM
38. newshell from s:MonthPrint con:0/0/480/140/Calendar/Auto
```




Shown above is the progress meter facility – while the Amiga takes about 30 seconds to work out the calendar, this measures its progress

only requires a year to work, but you can supply a month number too. The month argument could have been a month name, which adds complexity and means you have to type more.

2-4. Re-defines the bra, ket and dollar symbols. Dollar is changed here to make the script easier to read – you'll see why later on.

5. Preloads EVAL into memory for speed. Note the ADD argument is supplied here to the command and can be safely removed without affecting any other scripts.

6-7. Creates local environmental variables "Y" and "M" containing the year and month (if any) specified from the command line.

8. Subtracts 1 from the year number and stores the result in the global environmental variable, "Date". (You should note here, the dollar symbol is used to signify an environmental variable – it is not affected by the .DOLLAR command used earlier).

9. Subtracts 1 from the month number and stores the result in the variable, "Month".

10. A natty little trick to remove the century number from the date variable. Assuming the value held in Date was 1991, it works like this:

```
ECHO "$Date"
```

is read by AmigaDOS thus:

```
ECHO "1991"
```

because the local variable is expanded as the command executes. This is then affected by the FIRST and LEN keywords – FIRST=1, tells ECHO to display the leftmost

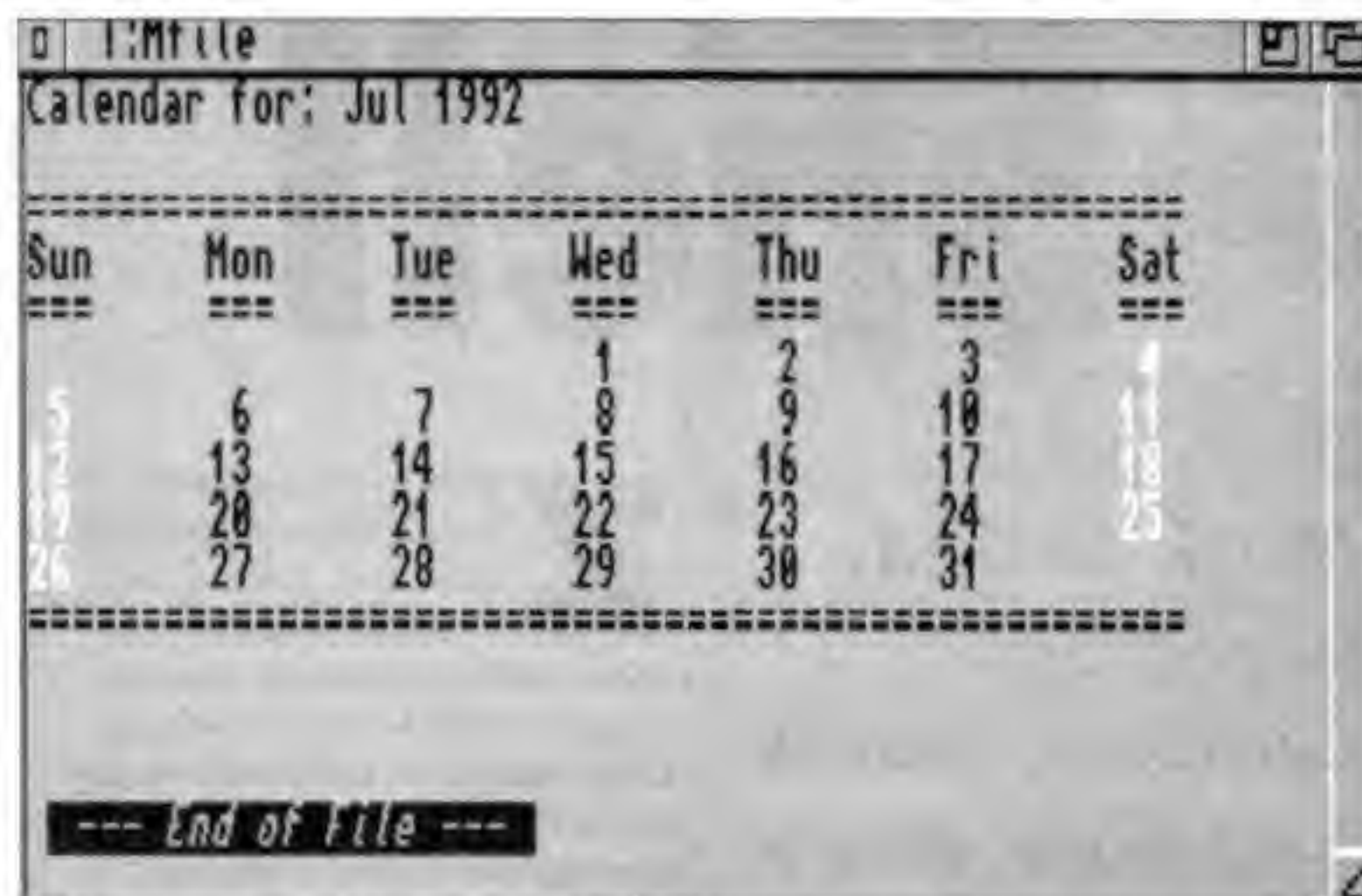
character on the string. LEN=2, makes ECHO display just two characters – ie the century number. In fact, this value is not displayed, instead it is sent to a new global environmental variable, "Cent".

11. Like step 10, this removes two characters from the "Date" variable. However, since the FIRST keyword is not supplied, ECHO reads the rightmost two characters – the Decade in other words. As before, this value is used to create an environmental variable (Decade).

12. This looks a lot worse than it is! It uses the BASIC translation of the Zeller's congruence method to calculate the day number of the first day in the required year. A point worth noting here is there *must* be a space before the dollar symbol used to signify an environmental variable. The result is stored in (yet another) global variable, "Day".

environmental variable, "Leap". Just to aggravate matters though, most centuries are *not* leap years. A century must be divisible by 4 (1600, 2000, 2400 etc) to be a leap year.

14. Tests the value of "Leap" and determines what to do next. If the year is not a leap year, execution continues at Step 15; if it is,



This is what the calendar looks like when you've put Zeller's congruence to work. Perpetual calendars have never been easier...

13. It is an interesting fact that you can determine if a year is a leap year (29 days in February) by performing modulo 4 on it. Leap years always return a value of 0. This calculation performs MOD 4 on the year number (supplied at the command line) and stores the result in the global

execution branches to Step 19.

15-16. This two-part step does some string slicing to obtain a value from an array of numbers. Each of the 12 months in a year has a particular number of days, you knew that much of course – but the computer does not. In BASIC for instance, you would set up an array like this:

```
FOR N=1 TO 12
  READ DaysInMonth(N)
NEXT N
DATA 31,28,31,30,31, 31
30,31,31,30,31,30,31
```

and read the array thus:

```
Days=DaysInMonth(Month)
```

where the variable "Month" selects the correct element from the array. AmigaDOS cannot handle arrays in this way – but by careful use of string slicing (and some careful typing) this can be achieved quite simply. I'll explain this step in detail because it occurs several times in this script.

The first job is to construct the array of numbers. This is just the number of days in each month as demonstrated in the BASIC example above.

To keep the script easy to read (and de-bug) the list is constructed with full stops between each value – although this is not strictly necessary. This leaves something like this:

```
".31.28.31.30.31.30.31.31
31.30.31.30.31"
```

LISTING 2: MONTHPRINT

```
echo "Calendar Working... wait"
echo "0% _____" first=1 len=$DIM noline
echo "~ 100%*n " noline
lab loop
if val $DIM GT $daynum
eval ( $wrap +1) mod 7 to env:wrap
if val $daynum NOT GT 9
echo >>T:Mfile " " NOLINE
endif
if val $wrap NOT GT 1
echo >>T:Mfile "**e[32m$daynum*e[31m" "**e[I" noline
else
echo >>T:Mfile $daynum "**e[I" noline
endif
eval $daynum + 1 to env:daynum
if $wrap eq 0
echo >>T:Mfile ""
endif
echo "**e[41m *e[40m" noline
skip loop back
endif
echo >>T:Mfile
"*n=====
more T:Mfile
echo ""
resident eval remove
endcli
```


Each number is three characters long, so you can pick any value by multiplying the offset (the month number) by three. A feature of AmigaDOS means the first character in the string is numbered one. Also, since the months start from zero (determined earlier) we must add two to get the correct offset. If that makes your brain itch, consider this:

Take June - month number five. In the script, the variable "Month" will be holding four. Therefore:

$$\text{Offset} = (4 * 3) + 2 = 14$$

The 14th and 15th characters in from the start of the data are "31", the fifth number in the data. Taking this offset as a start value and reading two characters, you can create an environmental variable...

15. Calculates the starting position using the environmental variable Month and sending offset result to global environmental variable, 'Slice'.

16. Starting from the position determined by 'Slice' this takes two characters from the string and saves the result in 'DiM' (Days In Month).

17. Creates another offset variable, used to read the data at Step 18...

18. ...here. This data is the number of days in the year that have elapsed at the start of the current month. Note this table is almost identical to the first one except the numbers are two or three characters long. To read a data table in this way, it is vital all strings are the same length - if a number is composed of two digits, it must be preceded by a space.

19. If control reaches here from Step 18, it branches to Step 24 otherwise it continues at Step 20.

20-23. These lines are essentially the same as 15-18, however these data strings are used for leap year exceptions. The data changes after February which has 29 days here.

20. Calculates the offset variable used at Step 21...

21. ...which determines the number of days in the selected month. This value is sent to the variable, "DiM".

22. Calculates the offset variable used at Step 23...

23. ...which determines how many days have elapsed up to the current month. It is important to note when you enter this program, all but three of the values change in this data set!

24. Closes the IF...ELSE...ENDIF construct opened at Step 14.

25. Prepares another string slice offset. This one is used at Step 27 to grab the month name.

26. Creates a text (MFile) file in T: with an initial string. Note here, the NOLINE switch is used to suppress the extra line feed. At this stage MFile contains:

Calendar for:

27. Uses ECHO's string slicing facilities plus the append to file operator (>>) to attach the current month name to the message string, MFile. If month 4 had been requested, MFile now contains:

Calendar for: Apr

28. Next, the year is added. This is taken from the local environmental variable (Y) created at Step 7. MFile now looks like this:

Calendar for: Apr 1992

29. This appends a "ruler" to the message file. (Equals signs are used here, but you can use any convenient character). Note the line feed at the start of the line which creates something like this:

Calendar for: Apr 1992
=====

30. This appends the 'day names' heading to the message file. Note how "e" (TAB) escape sequences are used to tabulate the text correctly.

31. Like Step 31, this adds rules to the day names. You can use any characters you prefer here, but you should keep the tab sequences.

32-34. Calculate the initial print position of the first date under the day name rules. Since this is quite tricky, I'll look at it in a bit more detail. The idea is quite simple, the day names appear across the top from Sunday to Saturday like this:

```
Sun Mon Tue Wed Thu Fri Sat
=== === === === === === ===
```

Now, let's take January 1992

the start of the current month. At January 1, no days have elapsed, but by the May 1, 121 days have passed. By adding this to the initial day number and dividing by seven, the remainder is the offset to the first day in the week. The formula is:

$$\text{Space} = ((\text{Day} + \text{Elapsed}) \text{ MOD } 7) * 8$$

32. This is the AmigaDOS version of

GOTTA PROBLEM?

If you get stuck with AmigaDOS or there is anything specific you would like to see covered here, drop a line detailing your conundrum to: Mark Smiddy, Amiga Shopper, 30 Monmouth St, BATH, BA1 2BW. Sorry, no personal correspondence can be entered into. You can EMail me on CIX @ "SMIDOID".

(January is the simplest month). The first of the month is a Wednesday (Day=3) so the program has to start printing 24 characters (1 TAB=8 characters) in from the start, so:

```
Sun Mon Tue Wed Thu Fri Sat
=== === === === === === ===
                1  2  3  4
          5  6  7  8  9 10 11
```

This is quite simple to produce using the formula:

$$\text{Space} = \text{Day} * 8$$

But what happens later in the year? Take May for instance. May 1 1992 is a Friday so how can we calculate that from the day number returned from Zeller's congruence? This is where the 'Elapsed' variables determined at Steps 21 and 23 come into effect. These determine the number of days elapsed up to

the above calculation. 'Elapsed' and 'Day' are summed first. Then the modulo (remainder after division is taken and stored in 'Day'. The calculation is split in two as the value of 'Day' is required elsewhere.

33. Day's new value is multiplied by 8 and stored in the new global environmental variable, 'Space'.

34. Uses ECHO's string slicing function to produce an effect similar to the STRING\$() function found in most modern BASICs. In the listing these are shown as periods (.) but they should be entered as spaces.

35. Sets the global environmental variable, "daynum" to 1. "Daynum" is used by the display script.

36. Copies the value of 'Day' to a new global environmental variable, 'wrap' (used by the display script). It is interesting to note, this operation could be accomplished by COPY. However, EVAL has been used because that command is made resident for the script.

37. Increments the value held in 'DiM' by 1.

38. Starts display script, MonthPrint. It is important to note how this has been achieved. Normally, the script would be called using EXECUTE or RUN EXECUTE; the latter being closest to the final solution. Using NEWSHELL allows you to effectively RUN launch EXECUTE and specify a window size at the same time.

NEXT MONTH

In next month's Cracking the Shell, I'll be explaining how the second part of this program works and modifying it so you can send an entire year to a printer - miss that and you'll be buying calendars forever! **AS**

AMIGADOS 2 MASTERCLASS

Attention dual drive owners who are still experiencing difficulty with Fountain. The solution given in the manual, one I have seen proposed in the past is to re-assign the LIBS: directory to point to the correct place so Fountain can access diskfont.library version 37. This is not a complete solution and neither is my preferred option to copy the new diskfont library to the boot disk. The problem basically is this: Fountain requires extra files from AmigaFonts 2 and refuses to boot if it cannot find them. This is not a problem on a hard disk-based system because the extra font files are copied across to the hard disk during normal installation.

The following commands (written as script if you prefer) should start Fountain painlessly.

```
ASSIGN FONTS: AmigaFonts2.0:Fonts ADD
ASSIGN LIBS: AmigaFonts2.0:Libs ADD
FOUNTAIN
```

The trick is to use the ADD switch to add extra directories to the assignment. This is not a complete solution because some software (including AmigaDOS) only searches the primary assignment. The primary assignment is the one created at boot time or by direct use of the ASSIGN command. You may however, have as many secondary assignments as you wish.

LIMITED EDITION • SELECTED NEWSAGENTS ONLY

COMING SOON

From **AMIGA**
FORMAT

The Complete Software Guide

Games • Graphics • Video • Music • DTP • Programming • Comms • Business • PD

More than **1,000** programs rated!

The sheer range of programs available for the Amiga is bewildering. But soon you need be wildered no longer – we're putting together the comprehensive guide to all the Amiga software available in the UK.

This special edition of *Amiga Format* will feature every commercial program you can buy, and we'll also be recommending all the best buys.

More than just a magazine, it's a vital resource for every Amiga owner. Don't miss out!

ON SALE
AUGUST 27
£3.95



CUT, TICK & POST... CUT, TICK & POST

Telephone or Fax Hotline (0702) 466933
PD Soft (AS17) 1 Bryant Ave, Southend-on-Sea, ESSEX, SS1 2YD



VARIOUS UTILITIES

JX V13 PLAY & READ CHALLENGE (2) A collection of education programs for the under 7 year old's.

JX V16 FISH TANK SIMULATOR A program that simulates an aquarium. Visually pleasing.

JX V28 WORD WRIGHT & AMIGA SPELL Contains over 9,000 words & more words can be added.

JX V48 TV & VIDEO GRAPHICS (8) Pack with background screens for your video productions. Different types of graphic styles. Peel, takes on FF Picture & peels it down the screen. & Much More.

JX V86 VIDEO PRODUCTION (2) Both disks are packed with video & Genlock utilities.

JX V109 PRINT STUDIO Excellent for printing pictures or text. An excellent program for all printer owners.

JX V191 MASTER VIRUS KILLER Virus Checker & Killer. With Excellent options. Includes Search disk.

JX V194 M.R.BACKUP HD An excellent hard disk back up program. Backs up all or any part of the drive.

JX V195 GRAPHIC INTERCHANGE Interchange graphics between Amiga 500/PC Graphics to the Amiga.

JX V215 DISKMASTER v2.2 Copies files from one disk to another. DISKALVY Connects & repairs.

JX V261 TEXTPLUS VERSION 3.0 This disk is not just an update but completely new word processor.

JX V262 DUPLICATION & BACKUP Super Dupler Turbo copy. Sanitize copy & PCOPY. Four new copies to backup your originals for safe keeping.

JX V277 FORTRAN-77 v1.3c Compiler, linker & run time support library.

JX V279 CROSSWORD CREATOR A program that creates crosswords. UPDATED VERSION.

JX V284 MCAD PROGRAM The Object Drawing Program for the Amiga in CAD.

JX V285 EDUCATIONAL: TYPING TUTOR A Simple typing which measures your speed on the keyboard.

JX V298 NORTH C v1.3 (2) The most famous C language on the Amiga. Includes all files required.

JX V301 EYE OF THE BEHOLDER HINT BOOK Inc Introduction, Background, Maps, Strategy & Solution.

JX V304 CHAOS STRIKES BACK HINT BOOK Inc Introduction, Background, Maps, Strategy & Solution.

JX V306 A-GENE v3.125 Latest version of the Family Tree program. Reviewed in CU Amiga.

JX V323 ANALYTICAL SPREAD SHEET (2) This is the best spread sheet program to date on the Amiga.

JX V330 RED SECTOR EXTRAS DISKS (2) Loads of extra bits for Red Sector Journey home. By the deadzone troopers.

JX V332 AMIGA PUT PROGRAM Predict which horse will win with this horse prediction program.

JX V339 SPECTRUM EMULATOR DATA DISK 1 Adventure Classics needs v2.16 or v4.43.

JX V340 TSB VECTOR DESIGNER The Special Bathys presnets. The TSB Vector designer v1.1.

JX V341 CLIP ART COLLECTION 2: Eight more disks. Fully packed with excellent clip art. (8)

JX V350 BUSINESS CARD MAKER Design your own Business cards on the Amiga.

JX V365 RED SECTOR MODULES (MUSIC) Various music modules for use with the Red Sector Demo Maker.

JX V366 600 BUSINESS LETTERS There are over 600 Standard business letters on this disk. Can be used as they are, or insert some parts into your own letters/text.

JX V390 THE DESK TOP PUBLISHING PROGRAM The first Amiga PD Soft Top Publishing program. Includes various extra features over the old Word processor. Text Editor, Graphics editor & loads more.

JX V392 AMICASH BANKIN The best bankin program that I have ever used on the Amiga. easy controls.

JX V394 CHEMESTICS A program that draws molecules using the calotte model. Excellent effects.

JX V401 WINDOWBENCH v1.0 (2) An excellent Workbench replacement for all v1.3 users. Recommended.

JX V410 PRINTING: FASTJET For Deskjet 500 users you want to use the resolution enhanced graphic set.

JX V413 WORK STATION Not just another WB clone. It's a collection of utilities with the Workbench theme. (2)

JX V415 VIDEO SCREENS 1 Excellent back ground pictures for video production work. Nice back drops.

JX V417 SUPERBENCH & EXTRAS (2) An excellent replacement disk with more utilities than the original WB.

JX V420 CURSOR BASIC COMPILER Compile any Amiga Basic program with this utility disk.

JX V423 C: COMMANDS This disk is filled with utilities which can be used in StartUp-sequences.

JX V424 ANTI FLICKER Said to stop the flicker in high Res mode during some Amiga program operations.

JX V431 IMPLORDER v4.0 Reduces file size for storage on hard drives at your own collection disks.

JX V433 ANIMATION STUDIO An excellent Animation creator for you to make your own.

JX V439 AMIGA C: MANUAL II This is the complete C: manual for the Amiga & describes all parts of the C: system. It also contains various examples, and some more examples. The tutorial is there to help you out. (4)

JX V444 PRINTER DRIVER UPDATE DISK II Now contains instructions how to install them. All previous drivers included on this disk. Over 90.

JX V445 JRCOMM v1.02 This is the latest version of the excellent modem based computer program.

JX V479 CHESS & CHESS UTILITIES A collection of chess related Puzzles, Programs & Utilities.

JX V484 ADVENTURE SOLUTIONS (2) Another good collection of adventure solutions for various games.

JX V489 AMIBASE PROFESSIONAL II The latest updated version of the excellent Database program now includes various excellent new features.

JX V490 MESSY SID II This is the latest version. It will read MS-Dos disks and transfer any file files to & from the PC disk / Your Amiga. So you can do work on an IBM or an Amiga and swap file between them.

JX V493 DESKBENCH (3) This is an excellent Workbench replacement with special utilities.

JX V497 BEATRICE POTTER CLIP ART An excellent collection of clip art for any DTP program or DPaint.

JX V498 THEE SOUND RIPPER v3.0 Finds Samson 1 & 2 (Midi) from cassette, Music Compiler, Sound Monitor, Noise Reducer, Stammerer, Delta sound system, Sound Whacker & more.

JX V499 STAR CHART v1.2 This is an excellent star plotting program with some interesting features.

JX V515 THE A64 PACKAGE v2.0 (2) & very complete C: 64 Emulator. Actually runs faster than 64. Runs 64 basic. Transfers disks from your original 64 disk drive with a shareware lead. Shareware costs \$4.95.

JX V517 VIDEO & AMIN: VIDEO DB A program for keeping track on your video tape collections. RTAP, lets you play large Anim on small Mem machines.

JX V518 IMAGE LAB This program is like a mini Art DEPT. Tools On Top Does loads, colourisations & gray bar.

JX V519 VIDEO: STILLSTORE Used to create over the shoulder graphic inserts like the 9.0 clock news.

JX V521 PLOTTING & GRAPHICS: PLOTXY A powerful full featured plotting prog. PLANS A: computer aided drafting prog. Requires ARP Library & ConMan v1.3.

JX V522 ARP v1.3: ConMan v1.3c Makes many improvements to Dos. Includes full developers guide.

JX V523 DICE C COMPILER (2) Matthew Gilsons full featured powerful C compiler & environment system.

JX V536 CATALOGUE UTILITIES A collection of utilities used to Catalogue disks / Video / Tape collections. (2)

JX V546 KIDS PAINT A painting program designed for children. Includes various colours and speech.

JX V549 ELECTROCAD v1.4 Another Updated on the cad electronics drawing (review written in Amiga).

JX V554 R.S.I. MUSIC MODULES 2/3 Another selection of music from Red Sector (2)

JX V556 RED SECTOR HELP DISK Another disk to help you use the Red Sector Demo Creator.

JX V560 DUPLICATION & BACKUP II A collection of copies like AmigaCopy, Copy Copy, Propy, RatCopy.

JX V567 PRINTER DRIVER GENERATORS A selection of utilities with various excellent Printer Driver Generators.

JX V569 DUNGEON MASTER MAPPER & IFFtool that creates maps of dungeons and eventually towns which can be used by a DM for use in a AD&D game.

JX V570 CHRIS HAMES UTILITIES: DIRWORK v1.51 Excellent file copier similar to diskmaster & Sid but contains more commands to hand. Recommended.

JX V571 WHOM II v2.02 (2) An update to the Dr Who database program. Gives all info on Dr Who prog.

JX V573 FILE & HARD DRIVE MANAGEMENT (2): HOCCLICK v2.0 A program selector to make hard disk Menu. Starts with gadgets FILE MINDER, Utility for maintaining files & Directories. DOSCONTROL: Tool that combines the functionality of many separate tools.

JX V575 HOME BUSINESS PACK (6) An excellent selection of utilities based on word processing, Data Management, Spread Sheets, Accounts & Printing.

JX V581 PRINTER DRIVERS 3 1 HP Deskjet 500 & 500 Colorjet, Canon BJ10e, BJ130, BJ300, Nec24c, Oku24p, 39p, Star24p, Panasonic, Seikoshop.

JX V582 DB & Database with up to 50 fields, max of about 1.2 million records. CLICKDOS II, An Amiga Dos enhancement utility. FILEFIND & SUPERVIEW v3.0.

JX V583 IKOMEDITOR II v2.0 Can create icons upto 640x200 pixels. DOCTORCON v1.0, imports images as icons. Edit & Create any Amiga icons.

JX V584 EDUCATION: FASTFACTS Everything you ever needed to know about the solar system.

WORLD MAP Produces different sorts of world maps.

PLANETS instant locations of planets. MATH MOUNTAIN.

JX V585 ARCHIVERS A selection of most archivers, like LHarc, Zop, LHwarp, Pak, Zip, PKCZip, Zip, Zippy.

JX V586 FONTS & C: COMMANDS DISKALVY, Repairs damaged disks. SWEEP, Free unused allocated memory. FONTASSIGN, Assigns fonts to the SFS path.

JX V587 GELIGNITE FONTS (2) A selection of fonts for use with any DTP Package or DPaint disks.

JX V593 TEXT ENGINE v3.0 Another excellent word processor program Simple but will do the job.

JX V599 BBASE II v5.3 This disk is one of the most well known database program. Recommended.

JX V603 POOL FORECAST v1.0 Pemo-Check is designed to check initial plans for winning lines. (IMB)

JX V604 PD COPY v3.0 New disk copy with some extra commands & quick copy modes built in. (IMB)

JX V605 PRO CALC v1.0 Offers the C: or Machine code programmer a 68000 or 68010 calculator when in use. (IMB)

JX V606 SAMPLE MAKER v1.0 This works specially for those who are not able to make samples with a sampler.

JX V607 PRO TRACKER v2.1 Written by Lars Zap Hare. Another update to the Ultimate sound making program.

JX V610 GOLF SCORES v1.84 It's will record each round you play. Store it, make up an eclectic score NEW! You can also show graphs of scores & performance against you. NEWER! It will now work out stableford points.

JX V611 FOOTBALL LEAGUE EDITOR v1.0 Want to update your teams league position as the results come in.

JX V620 ASPICE v3.2 Circuit Analysis, A full featured program for electric circuit analysis.

JX V621 EDWORD v2.2 is a fully featured & operational Word processor which offers all standard features & More like Powerful ones.

JX V624 MB COPIER v2.0 Will copy in AmigaDOS, Index, Nibble modes, search mode & special parameter copy.

JX V625 NCOMM v2.0 Contains, LHarc v2.0, LHarc v1.02, Zoom v5.40, DMS v1.03, LHA v1.1, LHA51X v1.1.

JX V627 DPAINT FONTS Na's 1-3 (3) The latest selection. Fonts for use with any IFF DTP Program.

JX V630 AMICASH basically Amicash still keeps track of your transactions with your account/Bank, such as Direct Debits, Cheques, Withdrawals.

JX V635 IBM EMULATOR PACKAGE v1.05 IBM is a CGA Colour IBM-PC emulator written to run on any Amiga. This is a demonstration version with a time limit of 15 minutes. The shareware cost is US\$30.

JX V636 VIDEO: SHADES & FADES: ANIMFADER A utility to fade screens in & out. SUPERVIEW, Will display IFF pictures. TURBOTITLE Create subtitles.

JX V637 TWIN EXPRESS v1.1a (2) Trans any file direct from an Amiga to IBM PC. It's connecting the 2 machines together with a null modem cable. Booted into US\$20.

JX V639 RADBENCH PLUS v2.0 This is not an update but a completely new set of utilities & WB replacement.

JX V640 PAGESTAMP FONT PACK 1 A selection of fonts for use with PageStream or other DTP Packages. (5)

JX V645 UEDIT v3.0a Word Processor with learn modes, Online Help, A teach Mode, Split windows, copy & paste, undo & other more standard features.

JX V646 SID v2.0 FILE MANAGER Sid can be used for various operations. The best is probably the file copier.

JX V647 WORKBENCH HACKS A selection of Hacks that have been reviewed in CU Amiga.

JX V648 TITANICS CRUNCHER v1.0 Cruncher with help & various protect modes includes speed changes.

JX V649 WP & SPELL CHECKING A Collection of utilities. PP v1.4, Describes Power pack files as they are loaded. SUPERSPELL v1.1, SPELLCHECKER v1.2, TEXTRA v1.1, Word processor. SCRAMBLER v0.1.

JX V650 CHECKBOOK ACCOUNTANT Will manage your bank account with ease. Very good indeed.

JX V651 THE SUPER KILLERS v2.4: BOOT X v4.45 This is the best virus killer disk to date kills over 240 virus & may be more. Includes excellent killers.

JX V652 PAGESTAMP FONT PACK 2 A selection of fonts for use with PageStream or other DTP Packages. (5)

JX V657 PC TASK is a software IBM-PC Emulator. It allows you to run the majority of IBM software with no additional hardware. CGA Colour. PLUS UPDATED.

JX V659 COMPUTER DIAGNOSTICS v9.1 is there a problem with your computer then what is it.

JX V660 HOME MANAGER This is a great old in one address book with an inventory database & To-do list.

JX V661 MODELLING: VERTEX Allows you to create 3d objects without using the X, Y, Z views. Loads Sculpt, 3d/4d, Turbo Silver & more Formats.

JX V662 DCOPIY v3.0 PROFESSIONAL You can select the speed of the disk drive, Copy modes, Dos, Nitcopy, Ver & safe copy. Loads of other features.

JX V666 MODELLING OBJECTS Contains over 20 vector objects in image format. Perfect for use with Disk V662.

JX V667 STAR TREK OBJECTS Contains the USS Reliant, NCC 1701D & a ferengi plus a Porsche Car.

JX V668 PRODUCTIVITY / BUSINESS Stock Analysis program SUBSTORE Log Magazine with search scans.

JX V669 CELLULAR AUTOMA This electronic model will allow you to simulate cellular circuits.

JX V670 ANDROID FONTS 1-7 Set installing font disks for use with DPaint programs (2 Drives Rec. 7 Disks).

JX V677 ANDROIDS VIDEO BACK GROUNDS A selection of Background Pictures in IFF Format.

JX V678 DRAW MAP v4.0 (2) Will now generate any to colour palette with user control. New features include larger maps with national boundaries, improved help and printing. 2Mb (IMB version v2.3). 1.2Mb version V524 (2).

JX V680 OPTIMIZER v1.0 This latest version of the Disk Optimizer. Re-Creates disks for faster Loading.

JX V681 GAME TAMER v2.2 Get a hold of that edit hard game & Cheat with Game Tamer v2.2.

JX V682 DEKSID v2.05 Hexa & Asci Editor for use with your Amiga. Full Program but still Shareware \$15.

JX V683 SUPER LOCK v1.01 Seal your disks / Hard drives for your eye's only. Protects with a Password.

JX V684 FONT FARM A collection of utilities based around the subject fonts. Character Editor v1.0. Font master v1.0. ShowFont v3.3. Set Font v2.5 & more.

JX V685 ASTRO PRO ASTROLOGY The best Astrology program on the Amiga by far.

JX V686 MULTIDOS v1.12 This is another must for people with PC disks. After this program has been installed your Amiga drives can read IBM Disks.

JX V687 VIDEO WIRES A collection of IFF Brushes and back ground graphical effects.

JX V688 MAGNETIC PAGES v1.30 This Shareware program will create disk based magazines with graphics.

JX V689 WALT DISNEY CLIP ART A Collection of pictures from various Disney Films.

JX V690 WORKBENCH v2.04 UTILITIES (2) This set contains the programs that should have been with WB 2.0. these powerful utilities take full advantage of the many NEW capabilities that are available in V682.

JX V692 RACE RATER v1.6 An excellent program for people who want information about races.

JX V693 HARLEQUIN VIDEO ART & FONT DISKS Another video production background set of disks. (3)

JX V696 POST v1.7 An excellent PostScript interpreter for the Amiga which implements the Adobe language. Requires V39+ & ConMan v1.3+ UPDATE.

JX V698 AGRAPH v2.0 Brings the world a cheap Amiga program to draw Bar, Line, Area & Pie charts for reports or presentations. In a user-friendly way.

JX V700 PERM CHECK (PLUS) is designed to take the chore out of checking plans for winning lines.

JX V701 STRATA v1.0 Strata is a landscape generating program. It allows printing of them from any angle, from any position, & with any magnification.

JX V702 EASY RAMOS FOR EASY AMOS This is the first update for Easy Amos user's. Requires Easy A.

JX V703 AMOS UPDATER DISK v1.34 This update is a major update to the software. For example, you can now directly update a version of AMOS installed on a hard-disk.

JX V704 AMOS COMPILER v1.34 Contains the Second Public Domain AMOS Compiler Update.

JX V705 MED v3.21 Another Excellent update to the famous music program Med.

JX V707 SCALEABLE CLIP ART (3) This is pack of completely new scalable Clip pictures for Pro Draw.

JX V710 AREXX TUTORIAL Includes several sample Arexx scripts & sample progs. Also APG Library.

JX V711 UNIX Contains a working demo of Minix, A Unix workalike. Minix is excellent compatible.

JX V712 PROTEUS 885 An excellent program for modern & Hard Drive used to start their own BBS (2)

JX V713 COMUGRAPHIC FONTS Contains 2 clipart style fonts & 4 actual typefaces for use with WB 2.04 & desktop publishing and/or video projects.

JX V714 24-BIT Contains Ken24 which allows you to print loaster generated 24-bit anims. Also off's to convert IFF's to IBM VGA/Windows readable format. Also contains latest JPEG file compressor.

JX V715 THE COMPLETE BIBLE With the entire text of the New Testament & Torah (Old Testament). IMB (3)

JX V716 SPECTRUM EMULATOR v1.4 Which is NOW!! 3 times faster. Requires a spectrum computer.

JX V719 FREECOPY v1.8 Removes protected games copy protection so that the user can install them on HD.

JX V720 DISKPRINT v1.51 A label database which prints & stores disk labels: combined database & print utility for disks. Works fine with every printer.

JX V721 ORDER v1.7 Excellent database program.

JX V722 PROTRACKER v1.1 This is the first version which is completely compatible with the Amiga plus.

JX V723 BOOT INTRO CONSTRUCTION SET A collection of utilities to create excellent Boot intros.

STAR TREK

JX AT05 KLINGON D7 CRUISER Fires torpedoes while passing by. NCC-1864 RELIANT, Very good drive indeed.

JX AT10 ENTERPRISE Leaves the Star station dock.

NCC 1701-A, The classic original Animation.

JX AT17 THE TWOK NCC-1860, Reliant & the NCC 1701-A-Enterprise. MENSCH ROBOTER.

JX AT18 TWOK-N, Anim NCC 1860 Avenger & NCC 1701-A-Enterprise. NCC 1089 Grissom.

JX AT22 APPROACHING VESSELS, Animation, Binary Right Wireframe landscape by T Richter.

JX AT23 STAR TREK FLEET MANUEVER, NCC-1940 Fly over & by animation, excellent classic.

JX AT33 THE PROBE II, Animation, BRID OF PREY, Animation from Star Trek, KLINGONHIT.

JX AT34 LEAVING SPACE OFFICE, Animation DOCKING, Animation from Star Trek, ATTACK MODE, Bird of Prey Scout ship in attack mode.

JX 1060 STAR TREK THE NEXT GENERATION, This game is by Terry A. Mcintosh. V1.47 *

JX 1081 THE ULTIMATE STAR TREK (2) Game by Tobias Richter. Now with English instructions.

JX 2222 STAR TREK THE NEXT GENERATION This is the latest top game based on the Next generation (2)

JX 2501 THE STAR TREK Game by Jimbo Barber The American version IMB & (2) disks.

JX 2503 THE STAR TREK Game by Eric Gustafson US Import requires IMB & (3) disks.

JX V367 STAR TREK INFORMATION A Database of all the original series. Very Detailed.

ERIC SCHWARTZ

JX 0981 STEALTHY MANUEVER II & FLYBY (IMB)

JX 1085 THE F-16 SWISS FLYING ATTACK (IMB)

JX 1609 NAVY AGGRESSOR, SOVIET SOFT LANDING, STEALTH BOMBER Three excellent (IMB) Anim.

JX 1700 THE ANTI-LEMMINGS Anim (2) 2Mb.

JX 1703 THE DATING GAME Anim (2) 3Mb.

JX 1842 SHUTTLE COCK Animation (IMB)

JX 1850 LATE NIGHT & TERMINAL Anim (IMB)

JX 2013 AGILITY Animation disk (IMB)

JX 2021 THE VIETNAM CONFLICT Animation (IMB)

JX 2133 THE GULF WAR CONFLICT (2Mb)

JX 2307 AMY AT THE MOVIES II (4) IMB Only.

JX 2311 AMY vs THE WALKER II (2) 3Mb.

JX 2384 AMY AT THE BEACH (2) 3Mb.

JX 2427 CAMOUFLAGE ANIM (IMB)

JX 2430 SKUNKS & HUNKS-POGO II Anim (2Mb)

JX 2474 AMYHIST introduces Amy the squirrel.

JX 2475 BATMAN & THE VTOL COMBAT (IMB)

JX 2476 HOW TO RUN, How to run into a wall. Very funny Animation by Eric Schwartz.

JX 2477 AMYWALKS Anim of Amy the squirrel Walking. AMYJOGS Of Amy the Squirrel Walking.

JX 2478 UNSPORTING 2Mb Starring the AIO Thunder bolt aircraft better known as the Warthog. Hunt & Destroy tanks.

JX 2499 ERIC SCHWARTZ TOR Animation (IMB)

JX 2500 THE SKY DRIVE Animation (IMB)

GAMES

JX 1073 TETRIS ORIGINAL This is the closest game to the original lets computer game & Classic.

JX 1420 DTRIS This is the best 2 Player Tetris game.

JX 1454 MEGA BALL An excellent Arkonard game.

JX 1486 SOUTAIRE & SOUTAIRE ROYAL Card games.

JX 1561 TRITWIS This is the best version of Tetris on the Amiga with 1 player, 2 player & 3 Player options.

JX 1735 ASTEROIDS THE ORIGINAL. Another old classic. This is the original classic computer game.

JX 1747 LLAMATRON GAME 2001 By Jeff Minter. Brilliant stuff & An excellent production. Shoot to kill.

JX 1749 SCRAMBLE The Original Remastered that old classic well is now on the Amiga. The Shoot'em up.

JX 1870 PATIENCE'S, This is the best version to date. DOMINOS, Play vs the computer or another player.

JX 1977 POM POM GUNNER Shoot down the incoming world war II air planes in this Operation Wolf type game.

JX 2018 JETMAN Another Spectrum classic converted to the Amiga. It's JetPak with all the original sounds.

JX 2022 SEA LANCE The first Silent Service type sub war game within our Amiga PD collection.

JX 2054 ATIC ATAC A rendition of the game from the original Spectrum computer. Graphic. Maze adventure.

JX 2162 BATTLE OF BRITAIN WAR GAME 2 Strategy war games which both need loading through WB.

JX 2164 DUNGEON ON NADROU This is the best Dungeons & Dragons Public domain type game.

JX 2173 CARD GAMES, Various (Card games) Miled Crabbage, Blue Moon, King, Patience & Hearts.

JX 2178 SURVIVOR A space based adventure game within the Aliens theme. Nice colourful graphics.

JX 2180 SKODA CHALLENGE An excellent 4 player half-dup game written in Amos. Simple but good fun.

JX 2199 PARACHUTE JOUST You are falling down to earth & must take the Parachute from the other player.

JX 2220 STRATEGIC GAMES, Eternal Rome, Lords of Hells, in Moonshine. An excellent collection of games.

JX 2221 MIND GAMES 21 of the best Mind games to challenge your mind not your shooting skills.

JX 2224 SWORD OF THE WARLOCK A Boards' rules / Eve of the Berserker adventure game packed on three disks. The best Shareware role playing game on the Amiga. Excellent Adventure. (3) IMB (2 Drives)

JX 2272 BLACK JACK LAB Play Pontoon upto 7 Players. This Amiga play banker & knows the regular versions of the game.

JX 2278 CARD SHARP A very professionally presented selection of solitaire type card games. Excellent versions.

JX 2279 SUB ATTACK v1.0 Control the torpedoes & sink the enemy ships as they sail past. LANDMINE.

JX 2280 DIPLOMACY v2.0 A classic strategy game loosely based on World War 1. A very detailed game.

JX 2313 REVENGE OF THE MUTANT CAMELS By Jeff Minter. The ride of a life time with mutant camels.

JX 2396 PETERS QUEST This is truly an excellent platform game for the Amiga. Recommended by all.

JX 2411 TOTAL WAR The board game version of Risk as reviewed in Amiga format. An excellent production.

JX 2432 GOLDEN OLDIES Galaga, Galaxians, Space Invaders, Asteroids, Battle, Missile Command & Timezone.

JX 2447 AMOS COINDROP FRUIT MACHINE Excellent simulator with various gamble modes. Great fun.

JX 2448 CRAZY ZUE This is another first rate platform game. You control a cute little school girl.

JX 2450 SMASH TV - THE RIP OFF Similar to the original arcade machine. With neat graphics & sound.

JX 2480 AMOS FRUIT MACHINE II As near as possible to the fruit machine found in Pubs & Arcades.

JX 2481 AMI MORIA This is the latest update to the Original Moria adventure game. Better graphics, and the latest adventure to date. Excellent.

JX 2482 DESCENDER is a clone of the classic arcade game Tempest complete with vectorized graphics.

JX 2483 INTRUDER is a Multi level Berserk clone. Features smooth gameplay, great graphics & sound.

JX 2484 CATACOMB v1.7 A graphical adventure game set on a small island in the middle of the land of EXODUSIA. Your quest is to discover secrets & treasures of this underground world. NEW UPDATED VERSION.

JX 2485 IRON CLADS (IMB) This is another update to the excellent Strategic War Game (2)

JX 2487 CLASH OF THE EMPIRES (IMB) Another excellent Strategic War Game by T A Seat. (2)

JX 2489 THE COLOSSAL WAR Game v1.0 An adventure by Donald Woods & Will Crowther & is virtually identical to the original main frame classic. Ported by Tony Belding.

JX 2490 RUMMY Another card game with graphics.

JX 2491 LEGEND OF LOTHIAN v1.02 is an adventure game in the vein of the Ultima game series. Includes colourful graphics, Hordes of monsters & puzzles to solve.

JX 2494 BATTLEMENTS - HUNCHBACK This is a conversion of the old classic game. Excellent game.

JX 2498 AMOS CRICKET An excellent arcade-crisket simulator with neat colourful graphics.

JX 2534 BATTLECARS II Excellent Solid 3d Graphics. Travel around 4 NEW tracks & Fire Missiles. You can now link two machines together with a Null Modem lead.

JX 2535 SUPER PACK MAN 92 This is the best Pack man to date with super smooth scrolling excellent graphics. Very Playable and Super Addictive.

JX 2550 E-TYPE Excellent Asteroids space adventure where you jet around collecting new weapons.

EASY ORDERING INFORMATION & ORDER FROM

ORDERING BY POST:
When ordering disks please tick the boxes to the left of the disk numbers (any coloured pen, Hi-Lighter or just use outline the disks). After selecting the disks/software that you require, Please fill in your Name & Address on the order form provided. Cut out or Photocopy this, insert in hand written orders are accepted, & Post to the address Above. Cheques & Postal orders should be made payable to PD-SOFT. If you have ordered before please tick the account number box.

NAME																											
ADDRESS																											
POSTCODE	A/c No	TELEPHONE																									
CREDIT CARD NUMBER (MASTERCARD or VISA)	EXPIRY DATE	TOTAL PD PRICE £																									
		TOTAL PD DISKS #																									
<table border="1"> <tr> <th>PRICES ARE PER DISK</th> <th>PERIPHERAL PRICE'S</th> <th>AMT</th> <th>PRICE</th> </tr> <tr> <td>1.....Disks £3.00</td> <td>51-100 Disks £1.50</td> <td></td> <td></td> </tr> <tr> <td>2-5.....Disks £2.75</td> <td>101+....Disks £1.25</td> <td></td> <td></td> </tr> <tr> <td>6-10.....Disks £2.50</td> <td></td> <td></td> <td></td> </tr> <tr> <td>11-20.....Disks £2.00</td> <td></td> <td></td> <td></td> </tr> <tr> <td>21-50.....Disks £1.75</td> <td></td> <td></td> <td></td> </tr> </table>				PRICES ARE PER DISK	PERIPHERAL PRICE'S	AMT	PRICE	1.....Disks £3.00	51-100 Disks £1.50			2-5.....Disks £2.75	101+....Disks £1.25			6-10.....Disks £2.50				11-20.....Disks £2.00				21-50.....Disks £1.75			
PRICES ARE PER DISK	PERIPHERAL PRICE'S	AMT	PRICE																								
1.....Disks £3.00	51-100 Disks £1.50																										
2-5.....Disks £2.75	101+....Disks £1.25																										
6-10.....Disks £2.50																											
11-20.....Disks £2.00																											
21-50.....Disks £1.75																											

COMPLETE THE Complete Fried Fish has been FRED FISH professional printed, bound & includes a sorted index of all the disks. It now stands at over 1504 Pages. It also comes with free update pages as the new disks are released. Please note that the updates are only available from PD-Soft. FRED FISH is a collection of Amiga Games, Utilities & Much, More. Each disk is totally packed with programs. All Fried Fish disks come with full instructions. £4.99

Any other disks Required, (inc Budget Software)

AMOS & FRED FISH DISKS
JX APD151 UNDERSTANDING AMOS The Amos Tutorial Program Disk. A must.
JX F572 MULTIPLOT v1.1 One of the most powerful data plotting packages available. Excellent abilities.
JX F580 WORLD DATABANK v2.2 Using a data base from the CIA, this program will plot world maps.
JX F631 AHDM v3.00a Hard disk menu system offers a sixteen page menu, each page having upto ten possible actions. Just double click on the option.
JX F652 ELEMENTS v3.0 A very nice interactive display of the Periodic Table of Elements. Shareware.

CUP ART COLLECTION
JX CA1 CUP-IT PACK 1 (5) Sports, Hags, Animals, cartoons, Humorous, Xmas, Jewish, borders, Hello-ween, valentines, eyes, alphabets, hands, zodiac cars & more.
JX CA1 CUP-IT PACK 2 (5) Men, woman, illuminated A to Z, arrows, stars, explosions, humorous, cartoons, painting hands, food & loads more.
JX CA1 CUP-IT PACK 3 (5) Fruit, Herbs, Mole, Arrows, Special Occasions, Vegetables, Kitchen Utensils, Cups, Glasses, Art Deco & Breakfasts.
JX CA1 CUP-IT PACK 4 (5) More Art Deco, babies, boys, girls, lots of Humorous, illuminated A to Z, scrolls, more special occasions & religious ornaments.
JX CA1 CUP-IT PACK 5 (5) Christmas Pack over a 20th century from letter Christmas to borders to trees & borders.
JX CA1 CUP-IT PACK 6 (5) Mythological Monsters an excellent pack of creatures from all over the world. Japan, Europe, India, North America, S America ect.
JX CA1 CUP-IT PACK 7 (3) Flower Power clip art pack, pictures of the most popular flowers, plus arrangements, sashes, flowers in vases & typesetting borders.

LICENCEWARE £3.50 Each
JX L8 DIZZY LIZZY'S This is an excellent educational program with various parts. Large colourful graphics.
JX L11 DIMENSION X This is a conversion of the film IRON. That the Light cycle part. Two player version.
JX L13 BOUNTY BOB The High Noon graphical adventure with excellent shoot out sections. IMB
JX L14 CLASS ROOM MATHS This program has various sections with different skill & age levels.
JX L16 COMBAT Do you remember that old VCS classic TANK well this is an excellent conversion.
JX L27 VIDEO: REAL 3D TEXTURES Contains various excellent textures like Black marble, Brick Work, Rough Ice, Marble, Tiles, Water ripples & Wood. Loads more.
JX CL1 TOTAL CONCEPTS This is an excellent educational set based on the subject of DINOSSAURS (2)
JX CL2 TOTAL CONCEPTS This is an excellent educational set based on the subject of GEOLOGY (2)
JX CL3 TYPING TUTOR A fraction of the cost of any commercial program, and contains full instructions.
JX CL5 ACHORDE A Great program for anyone wanting to learn to make use of a Guitar.
JX CL6 DRAGON TILES This game is thousands of years old. Yet is still played. Reviewed in AF37 August.
JX CL7 WILLY'S WATER WORKS This game is a conversion of the classic Piperman. Excellent idea.
JX CL8 TRUCKING ON 2 You own trucks, driving around Australia and run the company from the start.

DEJA VU SOFTWARE £3.99 + £1 P&P
These disks are NOW commercial disks NOT LICENCEWARE.
JX L'008 WORK & PLAY (CH) Three programs. CLICK CLOCK for learning the time. LET GO SHOPPING for simple division and

LISTINGS LISTINGS

THIS MONTH: A METRIC CONVERTER WRITTEN IN AMOS

Still confused by all that metrification lark? Then worry no longer, because we've got a program that will convert inches to centimetres faster than you can say "I wonder how many centimetres there are to an inch".

Multi-Con is written in AMOS, and is by Christopher Swift of Bingley. Apparently it was originally written for an Oric-1.

The program is very easy to use, being almost entirely menu driven. Just select the type of conversion you require (metric to imperial, or vice versa), then type in the

We want your listings! Display your programming prowess before your fellow Amigans and earn fame, fortune and everything that goes with it (£20)

quantity. *Multi-Con* will handle distances, areas, volumes, masses and weights. Many thanks for your entry, Christopher; you'll be getting £20 in the near future.

And if the rest of you want to earn some cash, just get those

masterpieces rolling in. Programs of any type are admissible: serious and useful, wild and wacky, or stunningly creative. Just remember that we can't print listings that rely on binary files for sprites, samples and so on.

All you have to do is pop your program on an AmigaDOS disk (along with source code if it is compiled or assembled) and send it to us at the following address:

Listings
Amiga Shopper
Future Publishing
30 Monmouth Street
Bath
BA1 2BW

Don't forget to include a stamped addressed envelope if you want your disk returning. Some form of printed documentation would be nice, too.

Many thanks, luvvies, for all the entries so far - keep 'em coming.

```
Rem *****
Rem * Multi-Con *
Rem *
Rem * Version 3.1 *
Rem * (Amiga) *
Rem *
Rem * By Chris Swift *
Rem *
Rem * Written in Amos *
Rem * V1.2 April 1992*
Rem *****
```

```
BEGINNING:
Gosub SETUP
```

```
MAINLOOP:
```

```
Do
Loop
End
```

This is the main loop. Everything is menu driven, so no program statements are needed within the loop itself.

The following are routines called depending on which of the menus is selected by the user. The first, *Conversion_B*, refers to the second set of conversion options. It indexes into the conversion data by adding a value of 19 on to the number of the menu selection chosen by the user.

```
CONVERSION_B:
SELECTION=19
```

```
CONVERSION_A:
```

```
SELECTION=SELECTION+Choice(2)
Restore
For COUNT=2 To SELECTION
Read WORD1$,WORD2$,FOMULA#
Next COUNT
```

```
WORDS$=WORD1$+WORD2$ : WORD1$=Left$(WORD1$,Len(WORD1$)-1)
```

```
AMOUNT#=0.0
```

```
On Menu Off : For X=1 To 5 : Menu Inactive(X) : Next X
Do
```

```
Clw : Print : Print WORD$;" ('Return' to exit.)"
```

Read data until required piece is reached, decided by the variable SELECTION.

```
Print : Curs On
Print "Please enter amount:"; : Input AMOUNT$ : ↵
AMOUNT#=Val(AMOUNT$)
If AMOUNT$="" Then Exit
ANSWER#=AMOUNT#*FOMULA#
Print
ANSWER$=Str$(AMOUNT#)+" "+WORD1$+" = "+Str$(ANSWER#)+↵
" "+WORD2$
If OPUT=2 Then Lprint ANSWER$
Window RESULT
Centre ANSWER$ : Print
Window 1
If RESULT=1 Then Print : Print "Press any key..." : Wait Key
Loop
SELECTION=0 : Curs Off : Clw
For X=1 To 5 : Menu Active(X) : Next X
On Menu On
Return
```

Get user's input as a string and convert it to a decimal number.

Send information to printer if the printer option has been selected.

The following is called if the user selects the printer option. It toggles between hardcopy or a screen-only output.

```
HARDCOPY:
```

```
B=Choice(2)
If B=1 and OPUT=1 Then OPUT=2 : Menu$(5,1)="Printer On" : ↵
On Menu On : Return
If B=1 and OPUT=2 Then OPUT=1 : Menu$(5,1)="Printer Off" : ↵
On Menu On : Return
On Menu On : Return
```

```
DISPLAY:
```

```
B=Choice(2)
If B=2 Then Window 2 : Clw : Window 1 : On Menu On : Return
If B=1
On RESULT Gosub WINDOWON,WINDOWOFF
End If
Return
```



```

WINDWON:
RESULT=2
Wind Open 2,90,110,50,16,2 : Ink 1,0
Title Top "Results" : Window 1
Menu$(4,1)="Result window on"
Menu Active(4,2)
On Menu On
Return

WINDOFF:
RESULT=1
Menu$(4,1)="Result Window Off" : Window 2 : Paper 1 : ↵
Clw : Wind Close
Menu Inactive(4,2) : Window 1 : Paper 2
Clw : On Menu On
Return

PROGRAM:
If Choice(2)=2 Then INFO : Return
'quit
Wind Close
Menu Del(1) : Menu Del(2) : Menu Del(3) : Menu Del(4) : ↵
Menu Del(5)
If RESULT=2 Then Window 2 : Wind Close
Screen Close 1 : Pop
End

```

Set up a custom screen, along with a window. Also select colours and print author's message.

```

SETUP:
Screen Open 1,640,256,4,Hires
Palette $0,$C,$EEE,$F00
Ink 1,0
Wind Open 1,90,10,50,12,2 : Title Top "Multi-Con."
Window 1 : Pen 1 : Paper 2
Clw : Wind Save : Curs Off
Print :
Print "NOTICE:- "
Print "====="
Print "All effort has been taken to ensure the accuracy";
Print "of the conversions made by this program,but the ";
Print "author can not except responsibility for any ";
Print "loss or damage due to the use of this program. ";

```

Set up each of the menus. In the case of the two conversion menus, notice how the data has been used twice - once to supply the text for the menus, again to supply the text when a specific conversion is taking place.

```

'set up the menus...
Restore
Menu$(1)="Program "
Menu$(1,2)="About"
Menu$(1,3)="Quit"
Menu On

Menu$(2)="Selection 1 "
For COUNT=2 To 20
Read WORD1$,WORD2$,FOMULA#
Menu$(2,COUNT)=WORD1$+WORD2$
Next COUNT
Menu On

Menu$(3)="selection 2 "
For COUNT=2 To 20
Read WORD1$,WORD2$,FOMULA#
Menu$(3,COUNT)=WORD1$+WORD2$
Next COUNT
Menu On

```

```

Menu$(5)="Printout "
Menu$(5,1)="Printer Off"
Menu$(4)="Windows "
Menu$(4,1)="Result Window Off"
Menu$(4,2)="Clear result window " : Menu Inactive(4,2)
Menu On

RESULT=1
OPUT=1 : Pen 3
Print : Print Space$(10); : Inverse On : Print " Press ↵
Mouse to continue. ";
QW=Mouse Key : Inverse Off : Ink 1,0
While Mouse Key=0 : Wend : Pen 1
Clw : Gosub WINDWON

```

This is the bit which sets up the interrupt such that a specific subroutine is called whenever one of the menu options is chosen.

```

On Menu Gosub PROGRAM,CONVERSION_A,↵
CONVERSION_B,DISPLAY,HARDCOPY
On Menu On : Return
FOMULALIST:

```

The 'from' and 'to' parts of the conversion wording are held as separate text strings, followed by a numeric value which represents the ration between the two units. Multiplying a number in one unit by the conversion factor will give the result in the other unit.

```

Data "CMS-", "INCHES", 0.3937, "INCHES-", "CMS", 2.54, ↵
"METERS-", "FEET", 3.281, "FEET-", "METERS"
Data 0.3048, "METERS-", "YARDS", 1.094, ↵
"YARDS-", "METERS", 0.9143998, "KILOMETERS-", "MILES"
Data 0.6213998, "MILES-", "KILOMETERS", 1.609, ↵
"SQ.CMS-", "SQ.INCHES", 0.155
Data "SQ.INCHES-", "SQ.CMS", 6.452, ↵
"SQ.METERS-", "SQ.FEET", 10.76, "SQ.FEET-", "SQ.METERS"
Data 0.09289998, "SQ.METERS-", "SQ.YARDS", 1.196, ↵
"SQ.YARDS-", "SQ.METERS", 0.8360998
Data "SQ.KILOMETERS-", "SQ.MILES", 0.3861, ↵
"SQ.MILES-", "SQ.KILOMETERS", 2.59
Data "HECTARES-", "ACRES", 2.471, "ACRES-", ↵
"HECTARES", 0.4046998, "CUBIC.CMS-", "CUBIC.INCHES"
Data 0.06101998, "CUBIC.INCHES-", "CUBIC.CMS", ↵
16.39, "CUBIC.METERS-", "CUBIC.FEET", 35.31
Data "CUBIC.FEET-", "CUBIC.METERS", 0.02832, ↵
"CUBIC.METERS-", "CUBIC.YARDS", 1.308
Data "CUBIC.YARDS-", "CUBIC.METERS", 0.7645998, ↵
"LITRES-", "CUBIC.INCHES", 61.03
Data "CUBIC.INCHES-", "LITRES", 0.01639, ↵
"GALLONS-", "LITRES", 4.546, "LITRES-", "GALLONS", 0.22
Data "GRAINS-", "GRAMS", 0.0648, "GRAMS-", "GRAINS", ↵
15.43, "OUNCES-", "GRAMS", 28.35
Data "GRAMS-", "OUNCES", 0.03526999, "POUNDS-", ↵
"GRAMS", 453.6, "GRAMS-", "POUNDS", 0.002205
Data "POUNDS-", "KILOGRAMS", 0.4536, "KILOGRAMS-", ↵
"POUNDS", 2.205, "TONS-", "KILOGRAMS"
Data 1016, "KILOGRAMS-", "TONS", 9.841998 E-04
Data "NO MORE", 0

```

Procedure INFO

```

Print " Multi-Con V 3.0 By Chris Swift"
Print
Print " Please feel free 82 Peel House"
Print " to contact me Crosley Wood Road"
Print " with any ideas or, BINGLEY"
Print " God forbid, any West Yorkshire"
Print " Bugs BD16 4QQ"
Pen 3
Print : Print Space$(15); : Inverse On : Print " Press ↵
Mouse. "; : Inverse Off
QW=Mouse Key : Ink 1,0
While Mouse Key=0 : Wend
Pen 1 : Clw : On Menu On
End Proc

```




Software for free

Although I've had a fair number of disks sent in this month, I get the feeling that once again the PD and shareware scene is less than incredibly active at the moment. Much of the stuff that I've been sent is fairly old and – once I've weeded out the demos and games – there ends up being less than there initially seemed. Perhaps Commodore's announcement of the A600 will mean that things pick up again – or, on the other hand, perhaps that announcement will disillusion prospective programmers and turn them to other machines. Only time will tell...

Anyway, on with the show. One disk which won't be reviewed this month is a straight rip-off of two heavy metal songs. Now I'm not averse to metal (actually it's my

Ian Wrigley rounds up the best of the new PD releases. Plus: an in-depth look at Magnetic Pages – a package designed to help you create your own disk magazine

staple musical diet), but what I am averse to is people just using a sampler to record entire tracks. The disk in question has a very nice opening screen – really well drawn – and contains two tracks by a hardcore thrash band. But all that the 'author' has done is record the music directly on to the Amiga. He even thanks a friend on the loading

really great packages this month: *Magnetic Pages*, a complete DIY disk magazine kit, and *Desk Top Video Pack 2*, a collection of a dozen video programs plus a printed manual from Anglia. Plus, of course, the pick of the disks that have fallen through my letterbox this month...

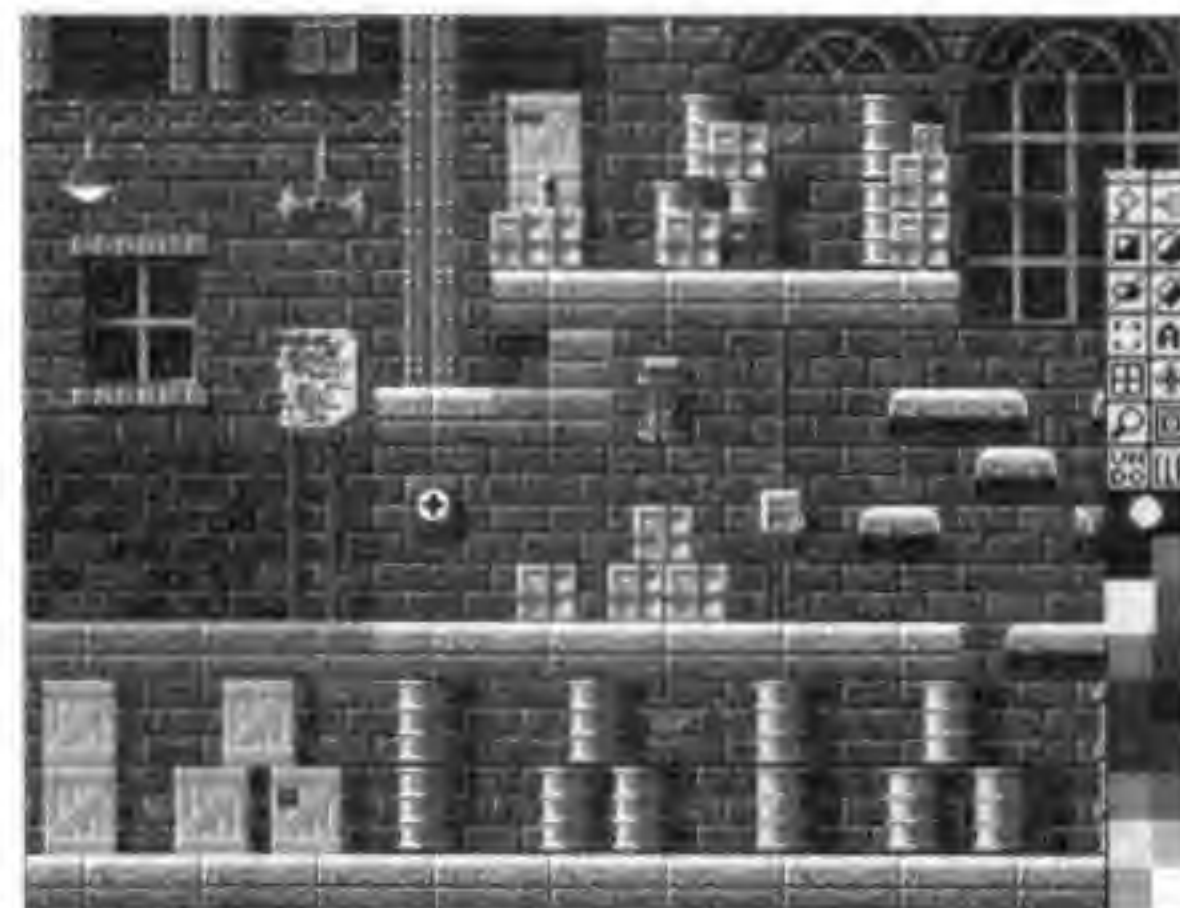
REMM AND RAMS

From Deja Vu software

REMM is a map creator, and *RAMS* is Robbie's Amazing Map Scroller. Both programs were written by Robbie Miller, both are licenseware, and both require 1Mb of RAM. They were written in AMOS, and provide a complete environment for creating and viewing maps and background graphics for games. Both a compiled, stand-alone version and a version which requires AMOS are provided on the disk, and there's also a separate licenseware disk of graphic screens and maps available.

In fact, the word 'maps' is perhaps a little misleading; really, the program seems intended mainly to create backdrops for games,

music or whatever. The program seems to operate by importing IFFs and splitting them up into 'tiles' of user-definable size. These tiles can then be placed on the 'map'. An example set of tiles is provided in the form of railway tracks, and using them it is easy to see that creating a large railway



This is just one of the many pre-created maps available on the separate graphics disk for *REMM* and *RAMS*. As well as this – a 'platforms and ladders' type game background – there are some very intricate spaceship-type backdrops

screen for lending him the record. This is not 'creative sampling', it's piracy. Stop doing it.

Other than that, there are two

network on-screen would be very easy in *REMM*. However, I'm a little unsure as to exactly who would find the program of real use. Games designers? Perhaps, but I imagine that backdrops to games are usually created in 'normal' art packages.

The programs themselves are well written, although the

continued on page 130

BEGINNERS

What is PD?

PD is a general term which many people incorrectly use to refer to all freely-distributable software. In fact, PD (which stands for Public Domain) software is only one branch of this area; the other main one is shareware.

Essentially, PD software may be copied and used by anyone, although some authors place restrictions such as not allowing a PD library to charge more than a certain amount for the disk.

Shareware, on the other hand, should be treated more like commercial software.

Although you are allowed to copy and pass around shareware programs, if you like one then you should pay the requested fee to the author – it's normally only £15 or less, and often entitles you to an upgraded version or a printed manual.

Paying your shareware fees

BEGINNERS START HERE

BEGINNERS

encourages software authors to write more

programs – and if they don't, the Amiga scene will be a poorer place.

Can I pass other people copies of PD?

Yes – that's the way that it gets to a wide audience. Just make sure that you have followed the author's requirements for distribution – normally that you don't charge more than a certain amount for the disk, or that you make sure that all the documentation is included on the disk.

You can also pass on shareware – but not any registered copies of programs. If, when you pay your shareware fee, the author sends you an improved version of the program, then be careful not to give that out. You should only pass on unregistered shareware.

RATING THE PROGRAMS

Just to be awkward, I rate the software that I review in two different ways, depending on what it is. Disk magazines, collections of clip art and the like are given a 'value for money' rating, since you're paying for one thing on the entire disk. Single programs which appear in a collection of others, or programs which I've downloaded from bulletin boards, are given a 'program rating', which reflects how good I think they are, taking into account usability, bug-proofness and so on. Both ratings are out of a maximum possible 10.

Simply phone your order through or send a cheque/postal order. Please add 60p to cover post and packing.

Access
International
orders welcome
please add
30p per disk for
post & packing

VISA
CREDIT CARD

ORDERS
283
494

continued from page 128

documentation did leave me a little at a loss as to exactly how to use them – be prepared for a fair bit of experimentation. The only real criticism I have with the programs is the fact that they use the standard AMOS file selector. OK, it's not Robbie's fault, but personally I find this requester to be one of the worst about. There's no button to change

subject – all you astrologers out there will be laughing yourselves stupid that I've never heard of this important event (or person). Still, such is life.

Creating a new chart is simple; just select the 'new chart' option from the Options menu and enter the data. The data entry screen isn't as user-friendly as it could be: make a mistake and the screen flashes, whatever you typed disappears and

you have to try again. I had trouble with one of the fields – I wasn't typing something in correctly – and I found that the program wouldn't let me quit or exit the data entry screen unless I worked out what the right format was. In the end I

issue. (Incidentally, version 2.20 of that program is now out; it multitasks, which was the only real criticism I had of version 2.10.)

Word Power is a spelling checker, with a few additional goodies built-in. Reading the doc file doesn't get off to a good start, though – the author says that "if you find any spelling errors in this document then this is because, due to release deadlines, there wasn't time to spell check these instructions." For instructions on how to use a spelling checker? Oh, please!

The program comes on a self-booting disk, which displays a simple menu – F1 to run the program, F2 for instructions and so on. The program and associated files can, of course, be copied to a hard disk and run from there.

F4 produces a file which details where to send the £2 or more shareware fee, and also gives short, lucid reasons for why you should

shareware authors who cash your cheque and don't even send a note of thanks.

When run, the program automatically loads the supplied 2,563-word dictionary and presents the main option screen. Unfortunately *Word Power* doesn't multi-task properly (at least, I couldn't make it), and it isn't

"Word Power is a little surreal in its spelling alternatives."

compatible with my screen saver.

The first option I tried was the basic spelling checker. This produces a scrolling copy of your text file on the screen, with unknown words highlighted. Because the basic dictionary supplied (until you register) has so few words, even basics like 'of' and 'do' weren't recognised until they were added to the dictionary. The 'suggest' option for unknown words brings up some... er... interesting alternatives: for instance, when I asked for alternatives to 'display' (yes, it was spelled correctly, but I was experimenting) the program suggested 'brindisi' (what that?) or 'crispies'. Rather surreal, I thought.

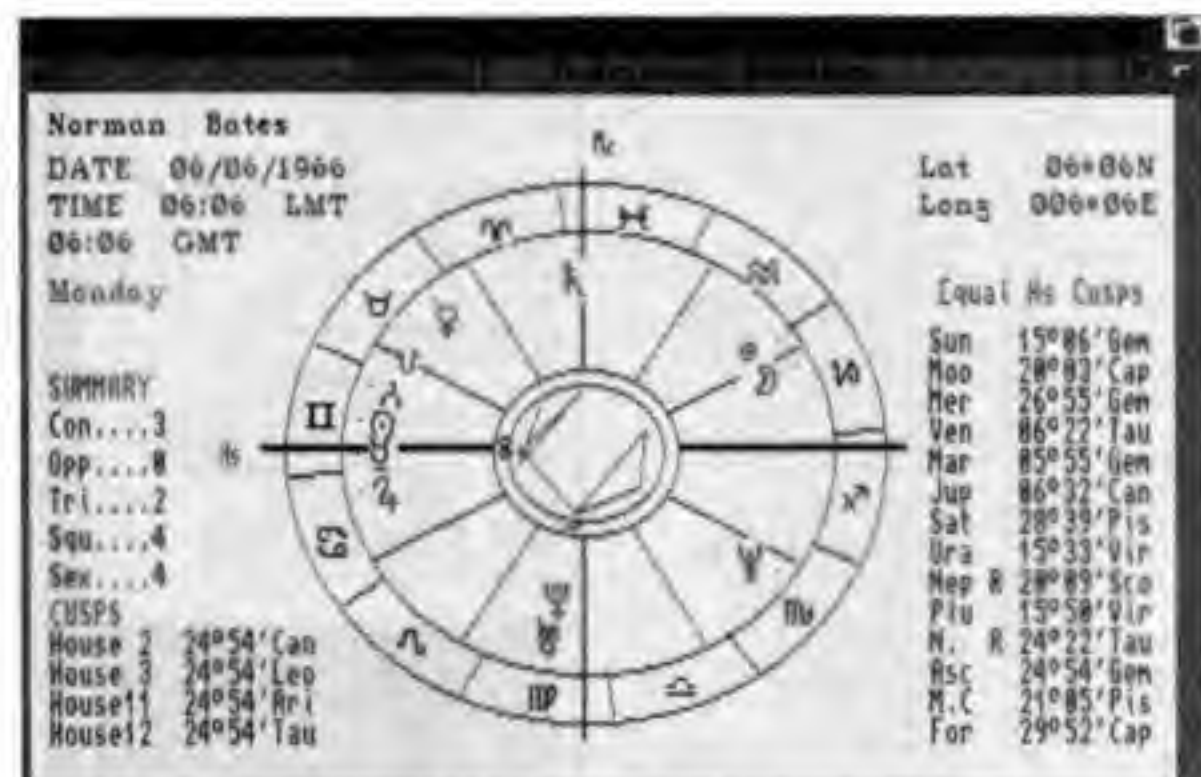
The spelling checker works at a reasonable pace along individual lines, but lines scroll up rather slowly, which reduces the overall speed quite considerably. Unknown

words are highlighted, and can be ignored, added to the dictionary or suggestions sought. Unfortunately, there's no way to cancel a check until an unknown word is found – so if you change your mind half way through a long, perfectly-spelled document your only option is to re-boot the Amiga.

Strangely, there is no way of typing in a direct replacement

for a mis-spelled word: if you don't have the right version in the dictionary – or if the suggestions don't include the correct version – there's no way to change it from within *Word Power*. Something that needs changing in the next version, methinks!

continued on page 133



Astro is billed as a 'professional astrology program'. Additional modules can be purchased to increase its functionality

drives, and the 'go to parent' icon is a tiny circle – hardly intuitive.

If my (rather woolly) description suggests a program that you would find useful, you're unlikely to be put off by such minor points. And the fact that the main disk contains source-code as well as the program itself is an added bonus. All in all, a nice effort – but some more descriptive information on just what the programs are intended for would have been nice!

Program rating.....7/10

ASTRO 22

PD Soft disk V685

Astro is a "professional astrology program", supplied on a self-booting disk. It was written by Dave Wilkinson, who sells add-on modules to extend its functionality – a nice idea, which other shareware authors might like to consider.

"Any prospective astrologers would be well advised to check out Astro 22."

Now, I'm not an astrologer myself (surprise, surprise) but certainly *Astro* looks impressive. When it's first launched, it displays the astrological chart for something (or someone) called Agi Ma. This probably shows my ignorance of the

The screenshot shows the data input screen for Astro 22. It has a list of fields with their corresponding values: 1. Name of Subject..... Norman Bates, 2. Time of Birth or Event..... 06:06 Hrs LMT, 3. Date of Birth/Event..... 06-06-1966, 4. Summer Time + +8 Hrs, 5. Zone Time Difference +/- .. 8 Hrs, 6. Latitude..... 06° 06 N, 7. Longitude..... 006° 06 E. At the bottom, it says "Press SPACE to change all: Keys 1-7 for single line."

Astro's data input screen isn't the most user-friendly in the world, but it does the job adequately

re-booted the Amiga and read the documentation files.

Actually interpreting the chart that's produced is, of course, the work of the user. But the drudgery and hard work of actually calculating the thing in the first place is handled very quickly (in about three seconds) by *Astro*. Add-on modules, costing between £3 and £10, include different cusps, the ability to save to disk and screendump, calculate midpoints, display graphical aspect wheels, output planetary data to screen and printer and so on.

Astro is a perfect example of a niche market program which performs its chosen task extremely well. Any prospective or current astrologers out there would be well advised to check this one out. Of course, some of us don't believe in the stuff in the first place...

Program rating.....8/10

WORD POWER V1.3

Word Power is a compiled AMOS shareware program by Steven Rennocks, whose *PowerBase* program was reviewed in the July

register the program. Nice one, Steven – more programs should explain why registering is important, rather than just saying "register now"



This grab is from an animation called 'Carling Ad', by Neil Cooper of the Woodhouse High School

and not giving any reason. In the case of *Word Power*, there is an added incentive to register: you will receive an 11,500-word dictionary within 48 hours of your shareware fee being received. Again, this service is a nice change from those



AMIGA PD

1-9 disks £1.20
10 - 15 disks 99p
15+ 90p

FREE PROGRAMS

Order 10 get 1 FREE
Order 20 get 2 FREE
Order 25 get 3 FREE

061 370 9115

No minimum order.
All orders sent out
the same day.

For a fast, reliable but foremost friendly service.

AMOS

APD014 IFF Pics No1 (Brill) +
APD031 Screen Designer +
APD101 Auto Player V1.10 +
APD205 RDraw V1.48 +
APD303 Litter Busters +
APD329 Fruit Machine II +
APD333 American Football
APD366 Chain Reaction
APD373 Compiler 1.34

UTILITIES

UT214 Amateur Radio
(6 Disks)
UT300 IFF 2 PCX+
UT302 Essential Utils 3
UT304 DCopy 3
UT310 Powerbase V2+
UT320 A64 Package (2)
UT327 VideoPack (2) +
UT331 Video + Animation +
UT328 Printer Drivers 3+

GAMES

GA086 Assassins 1-22+
GA219 Total War
GA226 Bounce 'N' Blast
GA251 Technoban (Brill)+
GA253 Yum Yum +
GA255 Cosmic Racer+
GA264 Atlantis +
GA266 Super Cars 2
GA271 Solid Quad

MUSIC

MU017 Digital Concert
(2 to 6)
MU025 Star Trekker
MU055 Pro Tracker V2.00
MU067 Amigadens
MU072 Mozart's Flute
Concerto
MU077 Puma Tracker (Brill)
MU058 Mozart (2 Disks)
MU054 EFX Music Creator

GRAPHICS

001 M-Cad
003 Print Studio +
005 Clip-Art 1 to 13 +
Original set uncut
024 Colour Fonts (5 disks)+
028 Walt Disney Clip-art+
033 Graphics Utils +

BUSINESS

BU004 Clerk (Brill) +
BU005 Genealogy +
BU007 Bankin' +
BU016 Text Plus V3.00+
BU019 Analytical V2.00 +
BU021 Amicash V1.0+
BU025 House Hold
Inventory +
BU026 Textengine +
BU031 BBase (Database)+

SETS

SPD001 Beginners I (5 disks - £5.80)
SPD002 Beginners 2 (5 disks - £5.80)
SPD003 Clip-Art 1 (4 disks - £4.60)
SPD004 Clip-Art 2 (4 disks - £4.60)
SPD005 Games 1 (5 disks - £5.80)
SPD006 Games 2 (5 disks - £5.80)
SPD007 Clip-Art 3 (4 disks - £4.60)
SPD008 ED1 (4 disks - £4.60)
SPD009 ED2 (4 disks - £4.60)
SPD010 Ed/Sci1 (4 disks - £4.60)
SPD011 Bus 1 (6 disks - £6.50)

WE STOCK OVER 2600

DISKS

including Scope, Macro
and Topic.

StarTronics

4 Arnold Drive,
Droylsden, Manchester
M35 6RE



ACCESSORIES

Large Mouse Mats ..£3.50
Squik Mouse£17.50

DISK SPECIAL OFFER

Sony Bulk£5.20
KAO Bulk£4.99

+ = Compatible with Plus

Postage & packing 70p
Add £3.15 per item for disk
box. Please submit payment
by cheque or postal order
Minimum order of 3 disks
required for credit
card payment

FRED FISH 1 - 680
TBAG 1 - 060

HIGHLAND

GAMES

21 ONE MAN AND HIS DOG
94 GREYSAYER, GRAPHIC ADVENTURE
144 DYNAMITE DICK
257 WIZARDS DOMAIN
151 STORYLAND 2, BRILLIANT KIDS ADVENTURE
234 AIRMANIA, ARCADE ADVENTURE
271 KARATE WORN, PLATFORM GAME
147 MUTANT ZOMBIE PSYCHO PIGS
132 PORN POIN GUNNER
137 BULL RUN, AMERICAN CIVIL WAR
131 DOWNHILL CHALLENGE, SKIING
145 PETES QUEST, PLATFORM GAME
248 ASSASSINS 20, MICROBES
204 GRID RUNNER / INVADERS
77 GREAT GAMES & AIRACE 2 + MORE
139/140 DUNGEON DELVER
130 BALLOONACY
128 MEGABALL
178 ASSASSINS 1 AVATIS, TANK
162 DEADLINE, ARCADE ADVENTURE

UTILITIES

5 SPECTRUM EMULATOR
33 VISICALC SPREADSHEET
40 TEXTPLUS 3 WORDPROCESSOR
100 POWERLOGO
120 AMIBASE PRO 2
269 WHOM II TWO DISKS FULL OF INFO ABOUT
270 WHOM II LOADS OF TU PROGS
167 HOUSEHOLD INVENTORY
49,50,51 HOME UTILS A,B AND C, VERY USEFUL
78 HOME FINANCE, SPREAD + LOAN CALC
314 GOLF RECORDER (NP)
75 DCOPT SCOPY III AND MORE
6 GENEALOGY
72 ESSENTIAL UTILS I INCLUDES SID
81 PCQ, PASCAL LANGUAGE
83 AMIGA FOX DTP (ENGLISH)
84 IBM PC EMULATOR
85 ST EMULATOR (NP)
262 LAST WILLS AND TESTAMENTS
138 FILOFAZ

MAKE CHEQUES/P.O.'S PAYABLE TO HIGHLAND PD

THOUSANDS OF TITLES TO CHOOSE FROM
LARGE EDUCATION SELECTION

255 DRUMMOSSIE AVENUE
INVERNESS • IV2 3SX • TELEPHONE 0463 242431

PRICES 1 - 9 DISKS£1.75
10 OR MORE£1.60
CATALOGUE DISK£1.50
FREE CATALOGUE DISK WHEN ORDERING 5 OR MORE
FREE POST AND PACKING

(NP) does not work on Amiga Plus

Express Public Domain

AMIGA PUBLIC DOMAIN AND SHAREWARE SOFTWARE OVER 4000+ TITLES TO CHOOSE FROM.

UTILITIES	19. Protracker V2.20 (P)	38. Journal
1. XCopy V7.3 (P)	20. Action Replay (P)	39. Bank Book (P)
2. DCopy Pro V3 (P)	21. Form Designer (P)	40. Super Duper II V2.01
3. PD Copy V3 (P)	22. QED (P)	
4. BBase II V5.3 (P)	23. Imploder V4.00 (P)	
5. Fixdisk V1.2 (P)	24. Amibase Pro (P)	
6. Diskmaster V3.2 (NP)	25. Messysid V2 (P)	
7. RSI Demomaker V2 (NP)	26. Nuke V1.5A (P)	
8. DiskX V2.28 (P)	27. Amateur Radio (6)	
9. Sid V2.00 (P)	28. Flexibase V2 (P)	
10. 600 Business Letters	29. Spectra Paint (P)	
11. Bible (4)	30. Nibbler II	
12. Zoom V5.4 (P)	31. Amiga Fox (P)	
13. Virus Checker V6.4 (P)	32. Icons Over 300	
14. Med V3.20 (P)	33. C Manuals (4)	
15. NComm V2.03 (P)	34. Visicalc (P)	
16. Term V2.1 (2) (P)	35. Cyclone Copier	
17. Zerotvirus 3 V1.20 (P)	36. FT-X Accounts	
18. Sysinfo V2.70 (P)	37. MCad (P)	

All P.D. is 99p per disk. Buy 10+ receive free catalogue disk. Includes:
3 Games, 2 Virus Killers, Charly Music Demo and complete listing of
Graphics, Music, Demo, Demomakers, Adult, Business, Education, Amos,
Utilities, Programming, D.I.Y., Previews, T-Bag, Fred-Fish.

Please add 60p to order U.K., Europe £1.00, rest of world £2.50 for P&P
EXPRESS P.D., 47 ABERDALE ROAD, WEST KNIGHTON, LEICESTER LE2 6GD, Tel enq welcome after 6.30pm Tel (0533) 887061



DISKS

from 31p



PREMIUM BULK DISKS 3.5" DS/DD

25	50	100	250	500	1000
10.99	20.50	36.99	84.99	164.99	317.99

OUR DISKS ARE FULLY GUARANTEED AND
ARE COMPLETE WITH LABELS

3.5" SUPERIOR LOCKABLE DISK BOXES

100 Capacity	4.49
120 Capacity	6.49

3.5" PREMIUM DISKS WITH OUR BOXES

100 cap. box + 50 3.5" DS/DD	24.49
120 cap. box + 100 3.5" DS/DD	42.99

3.5" BANX BOX - 80 CAPACITY

A superb product which is both
lockable and stackable

ONLY £9.95

With 50 Premium Disks £29.49



SNAP COMPUTER SUPPLIES LTD



HOTLINE

0703 457111

Fax: 0703 457222

RIBBONS - POST FREE

Full Mark Brand	2 off	4 off
PRICE EACH		

Citizen 120D/124D Swift 24	2.50	2.30
Citizen Swift 24 Colour (original)	15.00	
Panasonic KXP 1080/1123/1124	2.90	2.70
Star LC10 /LC20	2.80	2.60
Star LC10-4 Colour	5.90	5.70
Star LC24-10	2.80	2.60
Star LC24-10 Colour Original	12.50	
Star LC200	3.20	3.00
Star LC200 Colour Original	11.50	
Star LC24-200	2.80	2.60
Star LC24-200 Colour Original	12.50	
Ribbon re-ink	12.95	

ACCESSORIES - POST FREE

Mouse Mat	2.99
Mouse Holder	2.99
2 Piece Universal Printer Stand	6.99
3.5 Disk Clean Kit	2.99
Roll 1000 3.5 Disk Labels	8.99
Printer cable (1.5 metre)	3.99
Amiga A500 dust cover	3.50
Philips monitor cover	3.99
Star LC10, Star LC20 covers	
Star LC24-10, Star LC24-200 covers	3.99

SNAP COMPUTER SUPPLIES Ltd.

Unit 16, The Sidings, Hound Rd, Netley Abbey, Southampton. SO3 5QA

All products are subject to availability - All prices include VAT.

Please add £2.99 P&P for disks & boxes, £3.99 for paper. E&OE.

WIN! over £2,500 worth of competition prizes

PHOTOPLUS

TESTS, TIPS AND TECHNIQUES - TO MAKE YOU A PHOTO EXPERT

Still only
£1.95

SAILING PHOTO EXPERT

KOS EVANS' TOP TIPS

TESTS

Minolta's 9xi



The fastest autofocus SLR in the world? Our lab finds out



Got a camera? Then get this!

TIPS
Fast flash
Discover how to take shots like this...



TECHNIQUES
Shoot action!
A top bike photographer shows you how



OUT NOW

Another fine magazine from the people who brought you this one... Future Publishing

- Shoot fast action - top cycling photographer Steve Behr reveals his secrets
- Expert photographer Kos Evans explains how she gets stunning shots at sea
- Minolta's latest camera, the 9xi, is put through the PhotoPlus labs. Is it, as Minolta claims, the fastest autofocus SLR in the world?

PLUS WIN! £2,500 WORTH OF PHOTO PRIZES
Including two cameras from Olympus, a Sigma zoom lens, and loads of kit
All this for ONLY £1.95

FREE GIFT

Save money too! Why don't you take out a subscription?



SELLS FOR £14.99
Your FREE GIFT when you subscribe, *Practical Landscape Photography* by John Hedgecoe offers over 200 pages of practical advice and is crammed with 350 stunning photos.

Subscription price is only £21.40 **Save £2.00 on shop price**
YES I wish to subscribe to PhotoPlus at the special price of £21.40. Issue 7 is illustrated here; please start my subscription with Photo Plus Issue Number..... Code AS1

Credit Card ☐ Cheque ☐ (make payable to Future Publishing Ltd)

Name

Signature

Address.....

Post Code..... Tel No.....

Visa/Access Card No

Expires

Please return to
PhotoPlus Subscriptions, FREEPOST, Somerton, TA11 6TB

MAKE YOUR AMIGA EARN!

Yes, making money with your AMIGA becomes incidental when you know how! Your AMIGA is, if only you knew it, a gold mine. The size and make is irrelevant. Make the initial effort NOW by starting your own HOME BASED BUSINESS.

This may be the most important move you will ever make!

REMEMBER: You'll never get rich by digging someone else's "ditch". Anyone in the country, including YOU, can become very rich in a relatively short period of time just by doing a few basic things! It's more rewarding than playing games.

The benefits are many and varied.

Full or part time.

For FREE DETAILS SEND S.A.E. to:



Home Based Business.

AS10, 31 Pilton Place, King and Queen Street,
Walworth, London SE17 1DR.

Amiga-64-Link

- Links C64 peripherals to Amiga parallel port
- C64 Not required

Connects C64 printers to the Amiga

- Supports MPS, DPS, VIC, Star, Brother, Seikosha & Citizen printers
- Graphics output on dot-matrix printers
- Works with all software

Transfers C64 disk files to the Amiga

- File transfer programs
- Read/Write text, binary & program files

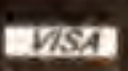
Standard "Ami-64-Link" £35.25

Prices include VAT and delivery

Budget "Ami-64-Link" £23.50

Budget stops multi-tasking during printing

York Electronic Research (0904) 610722
The Paddocks, Jockey Lane, Huntingdon, York YO3 9NE



MAGIC CLIP-ART COMPANY

Output to your Printer's
HIGHEST RESOLUTION
for
STUNNINGLY SHARP IMAGES



QUESTION: What happens if you create PROFESSIONALLY DRAWN Line-Art images at 400 D.P.I., and then convert them to 16 shades of grey?

ANSWER: You get brilliantly clear and crisp images that you can ENLARGE with little or none of those dreaded "JAGGIES"

CONTEMPORARY SILLOUETTES 4 Disk Collection of People and Places	HUMOROUS ANIMALS 4 Disk Collection of Cartoon Images	FUNNY ATTENTION GETTERS 3 Disk Collection of Cartoon Capers
SPORT 4 Disk Collection covering most Sporting Activities	Tariffs 1 or more Disks: £5.99 each 4 or more Disks: £4.99 each	RECREATIONS INSIDE+OUTSIDE 4 Disk Collection of Pursuits and Pastimes

Please note that all Prices include 1st class P+P.
If you wish to order only PART of a Collection then please state Disk A, Disk B, Disk C, etc etc

PLEASE MAKE CHEQUES OR POSTAL ORDERS PAYABLE TO: D.B. + M.A. HILLS.
PLEASE ALLOW UP TO 3 DAYS FOR CHEQUES TO CLEAR

Original and compatible with all DTP, ART and WORD PUBLISHING Programs

MAGIC CLIP-ART CO.
84 THORPE ROAD, HAWKSWELL, Nr HOCKLEY, ESSEX. SS5 4JT.

PRODISE P.D.

for Amiga PD and Disks 021-628 1450
Phone for your FREE printed catalogue
OPEN ALL HOURS

Bargain Packs

Music Maker (not Plus) 13 disks £12.50
Educational 1 age 5+ 7 disks £7.00
Educational 2 age 10+ 8 disks £8.00
Utilities - all you need 10 disks £9.50
C Programming 7 disks £7.00
Business Games 1 (not Plus) 8 disks £8.00
Games 2 - 30 in all 5 disks £5.00
Childrens Games 10 disks £9.50
Graphics/Animations 10 disks £9.50

Blank Disks

Unbranded 1-49 48p
50-99 45p
100+ 43p
Precision Brand 1-49 58p
50-99 55p
100+ 53p
All disks come with labels and are guaranteed

PD Prices

1-10 disks £1.25
11-20 disks £1.10
21-49 disks £0.95
50+ disks £0.85

Postage

U.K. 60p
Europe £1.50
Rest of World £2.50

FAST & FRIENDLY

The Best of ERIC SCHWARTZ
Over 25 disks on the one half hour video for P.D. or Video with lots of previews of disks, for ONLY £4.50

Another half hour video
The CATALOGUE ONLY £3.50

HOW TO ORDER: Either phone for a catalogue and use the attached order form, or write your order on a piece of paper and send it to us, together with a cheque or postal order at the address below.

81 Middleton Hall Road, Kings Norton, Birmingham B30 1AG

continued from page 130

Other options available include a (very fast) anagram solver, which also gives the *Scrabble* score for the word input, and a crossword solver, where words are entered with a question mark for any unknowns. The



Sonic is an anim brush created by Miles Kuzmanov, of the Woodhouse High School, and can be found on the ALF.A disk

program will scan the dictionary and produce any words which match.

Finally, you can save the dictionary under a different name – you might want, for instance, to keep different dictionaries for different foreign languages.

Yet again, Steven has come up with a winner. Despite the sound-effects that accompany every mouse click, and with the exception of the ability to directly enter a correction and the slow scrolling speed, both of which I'm sure will be addressed in the next version of the program, I can thoroughly recommend *Word Power*.

Program rating.....8/10

ALF.A ANIMATIONS

Woodhouse High School

David Perks wrote to me with a disk containing animations produced by 9th year pupils (13 to 14 years old) at the Woodhouse High School. David says that "while the animations may not be up to the standard of more experienced animators," he thought I might like to have a look at it.

Well, David, although you're right that none of the samples are going to put Eric Schwartz out of business right now, there's certainly a lot of promise here.

The disk is self-booting and contains 12 different animations, including the results of an art project

on computer animation, four anim brushes, and a couple of programs which were used to create some of the images – these were not, of course, written by the pupils.

Apparently all the animations were produced during art lessons at the school or at the after-school

Computer Graphics Club. I wish the art teachers at my school had been that innovative!

The disk I was sent is apparently one of several produced by the school, and is available for £1 from David Perks, Woodhouse High School, Highfields Avenue, Tamworth B77 3JB.

TOUCH TYPING TUTOR

NBS disk CLU03

Touch Typing Tutor is a licenseware program written by Eddie Dewhurst in AMOS. Its aim, unsurprisingly, is to teach touch typing. It does this through a series of lessons and exercises, ranging from repeatedly hitting one

key to typing whole, 1,000-plus word passages.

As you type, the letters you are required to hit are lit up on the display of the keyboard which appears on the screen. This display also has a colour-coding to show which fingers should operate which keys.

The program has a range of options such as whether to play a sound when a key is hit, whether to force you to use the backspace key when you hit the wrong letter and so on.

There are two different fingering positions supported by *Touch Typing Tutor*, although neither is exactly the one which I learned (from *Mavis Beacon Teaches Typing*, a commercial typing tutor program).

The actual lessons seem to be pretty conventional, if a little old-fashioned – after all, do you really want to spend the first five minutes just hitting the 'f' and 'j' keys? And while things do get better as the lessons progress, I find that it's much harder to hit random combinations of keys than it is to type real words.

The program only provides basic analysis: number of words typed, speed in words per minute, number of errors and a percentage rating for accuracy. There seems to be no record kept that, say, you consistently missed the M key – although perhaps that's too much to ask for.

If you feel the desire to learn how to touch-type (and I thoroughly

CREATE YOUR OWN DISK MAGAZINE!

Magnetic Pages arrived on my doorstep twice within about a week: once from PD Soft and once from the author himself, Mark Gladding, who lives in New Zealand. And boy am I glad that I've had a chance to play with it! Mark is the editor of a disk magazine called *Amsmag*, and *Magnetic Pages* is a set of three programs which allows you to create and display your own disk magazine. Text and graphics can be combined on a page, you can set up icons which allow the user to branch to other parts of the magazine and sound and music can be played at any time – specific music or sounds when icons are pressed, or an overall 'theme tune' which continuously plays.



The *Magnetic Pages* editor enables you to create text and picture boxes very simply. Once a box has been placed on the page, it can be moved and resized simply by clicking and dragging – so the initial dimensions don't really matter too much

MAGNETIC PAGES 1.30

PD Soft disk V688

Magnetic Pages really is an impressive package. Mark says that there are "a modest number of users scattered around the globe." I'm surprised that the number is only modest – this package, for a shareware fee of just \$25, is incredibly easy to use and produces a really professional-looking end product.

The package is made up of

three sections: Editor, Organiser and Displayer. The Editor is the program where pages and articles are created. Text and graphics boxes can be created, sounds and music incorporated and actual text and images imported.

There are also the little things like control of the colour palette built in – in fact, nothing is missing at all. It is easy to use, and I'm amazed that Mark hasn't taken it that little bit farther and



Magnetic Pages's Organiser is where all the magazine pages are put together in the correct order. The demonstration version lacks the Save command, so you'll have to register your copy before you can actually create any real magazines

recommend it: if nothing else, typing while staring out of the window instead of staring at the keyboard is guaranteed to impress your friends, if nothing else) and you were intending to do it by buying one of the many books on the subject, then I would strongly recommend *Touch Typing Tutor* instead. It's likely to be cheaper than a book, and at least your Amiga will be doing something other than acting as a very expensive typewriter.

On the other hand (and I know that I shouldn't do this in a PD column), if you've got the money to spare, go for *Mavis Beacon Teaches Typing* instead: it's more fun, and does the job well.

Program rating.....8/10

for clues as to how to make it work from the CLI or Workbench.

The disk was put together by Victor Issa, and takes the form of a large number of drawings of Disney characters, linked together with music from Disney films.

The music isn't digitised, and is played back as two-channel sound using some fairly naff sounds. The likeness of the illustrations to the Disney originals ranges from excellent (Donald Duck and Pluto particularly good) to dreadful (if you can recognise Mickey Mouse from some of the pictures that are displayed you've got a rather better eye than I have), but even when the characters don't resemble the originals, the illustrations are good

and are clearly the result of much painstaking work. The images are connected together with some attractive dissolve and fade effects, and the overall result is four or five minutes of pleasant enough viewing, especially if you happen to be a

cartoon fan.

It's a shame that I had trouble getting the disk to work in the first place - if I'd been a novice I probably wouldn't have managed at all, since the instructions are hidden in an invisible readme file, and are slightly wrong anyway. (And the whole thing is hidden in a locked filing cabinet with 'beware of the leopard' written on the outside...) And even when it did work, pleasant though it is, one or two viewings and listenings are all that you're likely to be able to take.

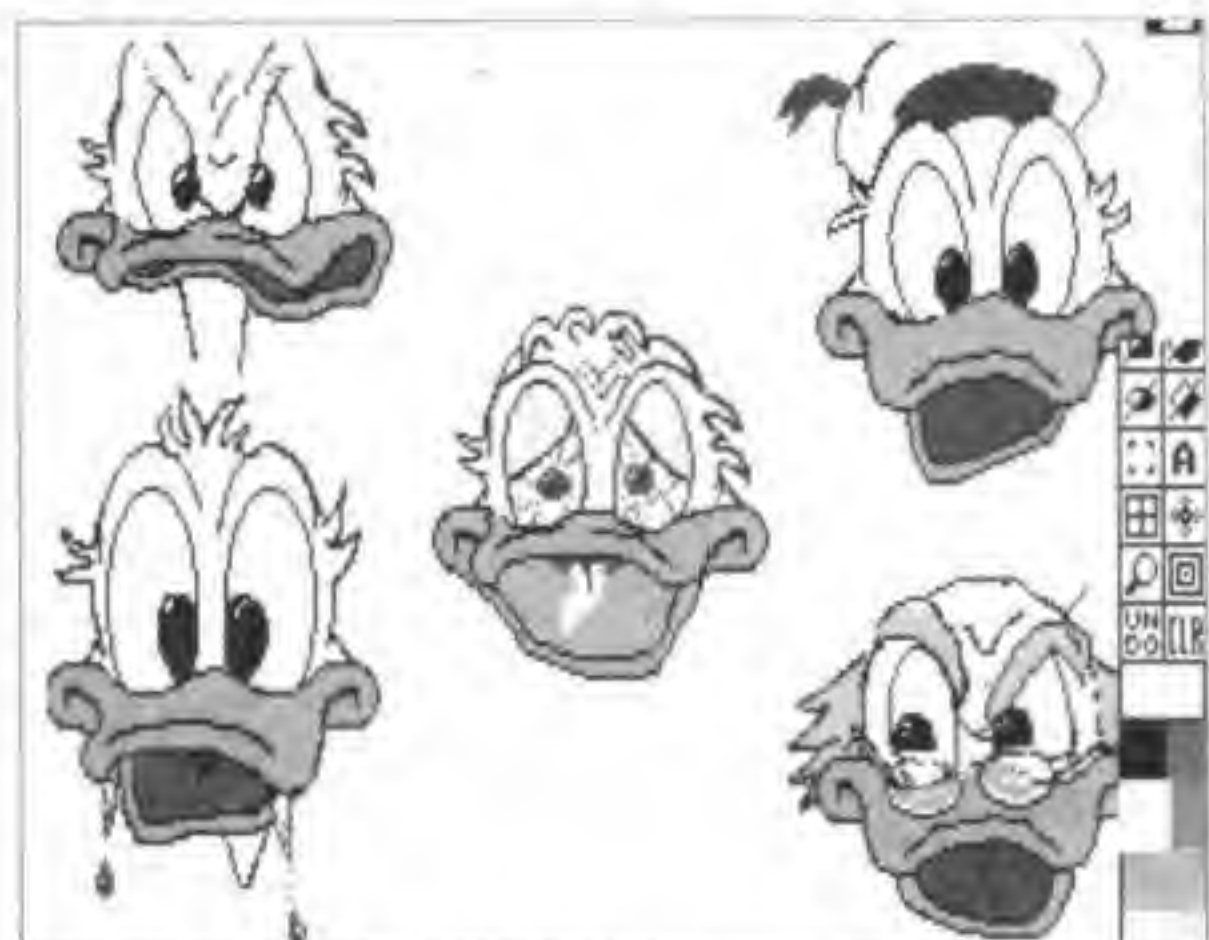
Value for money5/10

WOTS-ITS-NAME

Official AMOS PD library

Anne Tucker has just taken over running the official AMOS Public Domain library from Sandra Sharkey - who continues to run the Déjà Vu licenseware - and she has sent me a few games and demos to review. Now, normally I don't look at either of those two categories (remember kids, *Amiga Shopper* doesn't recognise the existence of games!), but *Wots-its-name* (sic) is more of an educational program (honest). Based on the old TV and radio standard, *20 Questions*, this game (sorry, educational experience) is a kind of general knowledge quiz with a board-game slant. There are 20 clues to

continued on page 135



PDSOFT's disk V689 has some great Disney images, like the one above. Some, on the other hand, are almost unrecognisable as Disney characters

WALT DISNEY CLIP ART

PD Soft disk V689

This disk, although apparently self-booting, managed to crash my Amiga every time, before anything useful had happened when I tried to boot

"If an autobooting disk doesn't autoboot, check for documentation files."

from it. However, checking out the 'read me' file (which doesn't have an icon) and ignoring some of the instructions it contained, lead me to try putting the disk in DFO: and typing 'execute dfo:start.ex'. Hey presto, the title screen appeared, and everything worked fine. Which goes to show: if an autobooting disk doesn't autoboot, check for documentation files and try examining the 'startup-sequence' file



This page of the sample magazine provided on the disk shows mixed text and graphics. Clicking on the picture displays an animation. The set of controls at the top right of the image allows the user to navigate around the magazine easily

MAGNETIC PAGES

...continued I

turned it into a fully-fledged DTP program. It would certainly rival many of the others out there if he did. This is one of the most intuitive, easy-to-use programs that I've found on the Amiga - and I would even say that it gives many Mac applications a run for their money. For instance, when creating a new text or graphics box, a standard requester appears asking for things like the box's dimensions. But once it's on the page, a simple menu selection and you can resize or move the box with no trouble at all. This means that those who have a deep desire to make sure that everything aligns perfectly will be content - they can type numbers into boxes - while those who prefer to design by eye, moving things around until they achieve the look that they were after can do that, too. Brilliant.

Once you've designed and saved all your articles, you move on to the Organiser. Here, you define the relationship between all the

different articles - that is, which is the 'parent' for each article. This is the page that the reader will be taken to if they hit the 'contents' button when reading the magazine. The article names take the form of an AmigaDOS pathname, so you'll have to save your pages on to a disk in the right place before you use the Organiser. The demonstration version of the program supplied doesn't actually allow you to save the Organiser file, so until you've registered the package you won't actually be able to create full magazines. But at least you will be able to see how everything works.

Finally, the Displayer. This is the part of the package that you will ship with every disk magazine that you create. It provides the viewer with a number of features: the ability to navigate through the magazine (of course!), to turn sound on and off, perform a search for specific text, save a page as an IFF or save text as plain ASCII, and print out a page. The

Auto Page Number

Prefix ☐ Insert Before
☒ Insert After

Infix

Suffix ☒ Page Number
☒ Total Pages

Pages in the Editor can be auto-numbered as they are created

continued from page 134

each person, place, thing or year, and the more clues you and your opponents take to work out what the answer is, the less your counter is advanced around the board. The winner is, of course, the first person to get their counter all the way around.

As with all programs such as this, one of the problems is that you have to be perfectly accurate when

it can be difficult for the user to get into. We have experimented with printed manuals in the past and found them to be surprisingly successful, sheer ease of use being the main reason.

"The customer can begin (using the programs) immediately, no printing involved and it's worth mentioning that not all Amiga owners have printers."

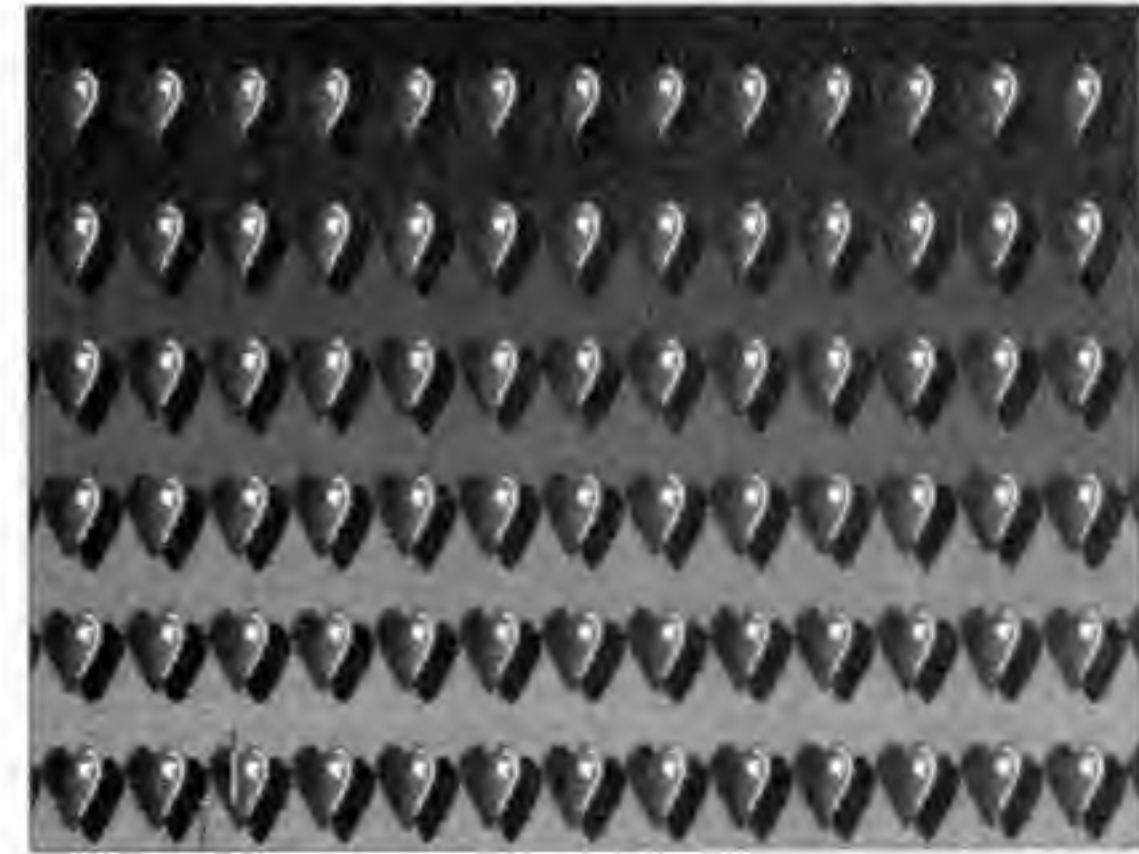
Well said, Mark. I happen to find it extremely frustrating to have

my printer painstakingly output 30 or 40 pages of manual for reference whenever I'm reviewing a large PD program – and it's not cheap, either!

The Anglia package which I was sent is *Desk Top Video 2* – this is a collection of four disks for just £3.96, which works out at

the standard Anglia price of 99p per disk.

The printed manual costs a further £2.99 – and it's well worth the extra. There are 50 pages of small-print text, starting with an introduction to the pack as a whole and moving on to the 'readme' files for each of the main programs. And main programs galore are provided on the four disks: 12 are detailed in the manual, and some of these are



TV graphics contains 10 pieces of clip art which could be used in a video environment. If you were completely tasteless, that is...

you enter your answers. For instance, 'Everest' was judged wrong, because the actual answer is 'Mount Everest'. Likewise 'Arthur' and 'King Arthur'. It would be nice to see programs which require a textual answer to have a little artificial intelligence or pattern matching built in to avoid this sort of annoyance.

The program contains a range of sampled sounds, including the famous *Lemmings* 'Oh no!', and is actually a pretty good version of the parlour game (does anyone still have parlours these days?).

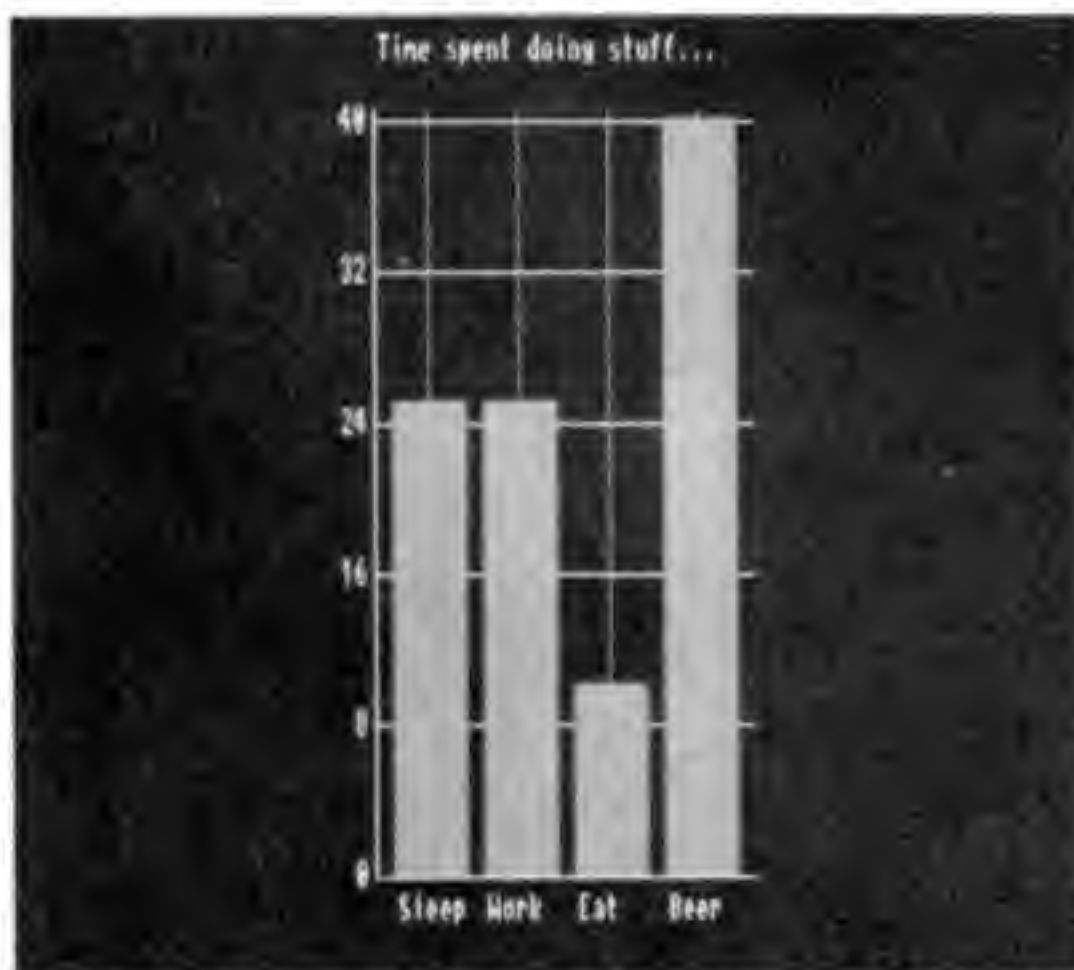
All in all, if you've got any inquisitive kids in your household, this should keep them quiet for an hour or so – and for that alone it's certainly worth getting your hands on.

Program rating.....8/10

DESK TOP VIDEO PACK 2 Anglia PD

Anglia Public Domain produces a number of 'packages' of targeted PD, aimed at putting as many relevant PD programs on to a set of disks as possible.

The company has also taken the unusual step of producing printed manuals for some of the packs. This, according to owner Mark Harvey, is because "our experience tells us that a major problem with PD is that



A-Graph produces pie charts, histograms and the like. It's not the easiest program in the world to use, though...

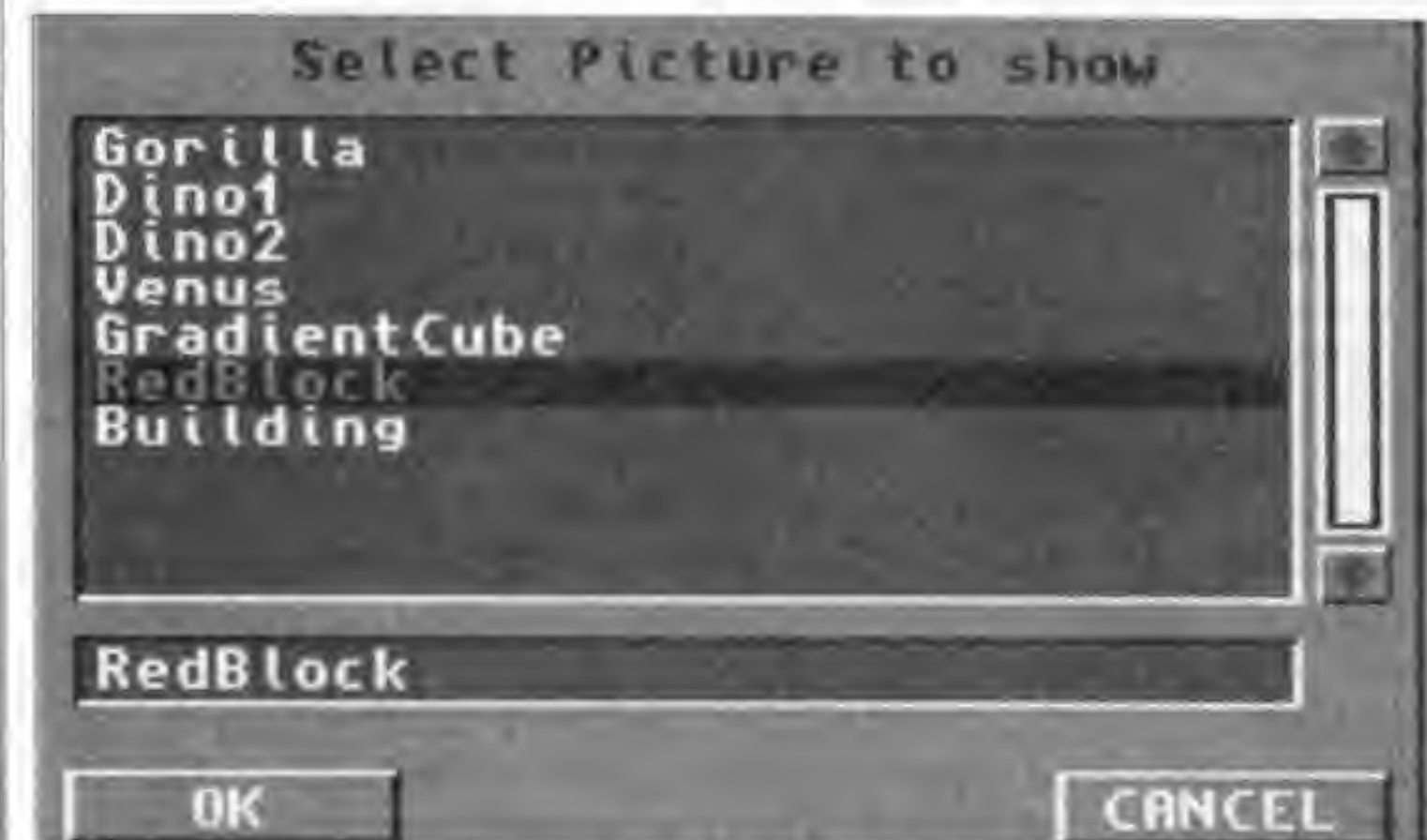
collections of three or four small utilities. The 12 in the collection are:

- *sMovie* – a general purpose video titler.
- *QED* – a text editor, for creating titles and the like.
- *Virus Checker 6.04* – for peace of mind.

continued on page 136

MAGNETIC PAGES

...continued 2



Once pictures have been loaded into the Editor, they can be displayed before placing them in picture boxes on-screen

user can jump to other pages either using the on-screen navigation controls, via a menu or by clicking on icons which you've designated as being navigation icons. It's all very easy to use, and your readers shouldn't have any problems getting around your publication. Because the actual display is a tool, the user doesn't ever have to do anything other than double-click on the icon for your magazine.

To demonstrate the power of *Magnetic Pages*, a sample magazine is supplied. This includes text, graphics, sound effects and animations, all of which are articles taken from Mark's *Amsmag* magazine. If you're not convinced after leafing through this, you never will be. Personally, I was stunned at

how good and easy to use the whole thing is.

CONCLUSION

The *Magnetic Pages* package is terrific. I'm amazed – and ashamed – that I haven't seen it before now, because that means that I haven't been able to recommend it until now. And recommend it I do – if you have any thoughts of creating a disk magazine, I suggest without reservation that you get hold of a copy of this package without delay. If you're already convinced and you want to get hold of the full version immediately, send US\$25 – cash or a cheque drawn on a New Zealand bank only – to Mark Gladding at 66 Churchill Road, Murrays Bay, Auckland 1310, New Zealand.

Program rating.....10/10

MAIN FEATURES

- Eight or 16-colour screens, on which text and graphics can be mixed.
- An all-graphics page can be defined, where any IFF picture in any screen mode such as HAM can be displayed.
- The reader can branch to different articles in the magazine by clicking on icons.
- Digitised sound and *MED* or *SoundTracker* music is supported. This can be played when the reader first enters a page, or when an icon is clicked.
- Many different text styles such as bold, italics, underline and so on are supported, as is coloured text.
- Page colour, box colour, shadows and borders are user definable.
- Boxes can contain several frames of animation.
- *PowerPacker* is supported, meaning that articles can be compressed so more can be fitted on the disk.
- Articles can be printed, saved as text or saved as IFF files by the reader.
- Text searches can be performed by the reader. The search can be performed on the current page, current article, group of articles or the whole magazine.
- PAL and NTSC standards are both catered for.
- Workbench 2.0 is supported.

continued from page 135

- **ShowWiz** - a slideshow program, which can also incorporate text and sound.
- **SportsText** - a video titler which quickly enables you to display 100 or so different pre-defined titles, which is particularly useful for on-the-fly titling of sports events and suchlike.
- **TV Graphics** - clip art which is likely to be useful in the video environment.
- **The Introducer** - used to create scrolling demos. Just give it an IFF picture, a sound file if you want sound to be played, and the text that you want to appear, and the program does the rest.
- **VTOT** - which stands for Video Tools on Tap. It's a test pattern generator.
- **ShadowMaker** - a font shadow generator, which converts fonts into colour fonts with antialiasing and shadows built in.
- **InTime** - overlays a rough time

code on to videotape, although it only counts in seconds, and not frames.

- **Video Librarian** - a database for keeping track of your video collection.
- **A-Graph** - draws bar, line area and pie charts.

The guys at Anglia have obviously gone to a great deal of trouble in collecting all these programs together, and I have to hand it to them - they've certainly found more video-ish programs than I've come across until now!

All the programs seem pretty decent from the descriptions, although I must come clean and admit that I haven't tried them all. Still, if you use your Amiga for any sort of video work, I'd say that you can't really do without this collection.

Congratulations to Anglia on a well-executed idea - perhaps you'd like to send me some of your other packs for review, guys?

Value for money.....10/10

WHERE TO GET IT

There are two main ways to get hold of Amiga PD and shareware: from a bulletin board or from a PD library.

The advantage of using a bulletin board is that often the latest software is uploaded as soon as it's available. On the down side, you need a modem to connect, and you'll have to pay phone charges (and sometimes a correction fee to the bulletin board as well).

There are a growing number of bulletin boards with a wide range of Amiga software available for download. Check out 01 for Amiga (071 377 1358) and the Cheap Amiga Bulletin Board (081 644 8714). Another good option is joining CIX (the Compulink Information eXchange), which not only has Amiga software but also contains conference and file areas on a wide range of subjects, from politics to scuba diving, biking to Science Fiction. Many of the *Amiga Shopper* writers have accounts on CIX, so you can get first-hand advice on your problems, too. For more details, call CIX on 081 390 8446 (voice) or 081 390 1255 (modem).

If you don't want to use a bulletin board, the other way to get PD software is from a PD house. Many advertise in *Amiga Shopper*, and you'll find a comprehensive list of names and addresses at the end of this article. Expect to pay between 99p and about £2.50 per disk - there's often a discount if you buy in bulk, too.

UK PD HOUSES

3 Amigos
16 Marsett Way
Leeds LS14 2DN
☎ 0532 733043

Amiganuts United
169 Dale Valley Road
Hollybrook
Southampton SQ1 6QX

AMOS PD Library (also DeJa Vu)
25 Park Road
Wigan WN6 7AA
☎ 0942 495261

Anglia PDL
115 Ranelagh
Felixtowe
Suffolk IP11 7HU
☎ 0394 283494

Blitterchips
Cliffe House
Primrose Street
Keighley BD21 4NN
☎ 0535 667469

CLS
PO Box 7
Bletchley
Milton Keynes, MK2 3YL
☎ 0908 640763

Crazy Joe's
145 Effingham Street
Rotherham
South Yorks S65 1BL
☎ 0709 829286

Deltrax PD
36 Bodewyddan Ave
Old Colwyn
Clwyd LL29 9NP
☎ 0492 515981

Digitz
PO Box 144, Mexborough
South Yorks S64 9SL
☎ 0709 571748

EdLib
Scotland Farm, Stockwood Road
Brislington
Bristol BS4 5LU
☎ 0272 723489

EMPDL
54 Watnall Road
Hucknall
Nottingham NG15 7LE
☎ 0602 630071

Essex Computer Systems
118 Middle Crockerford
Basildon
Essex SS16 4JA
☎ 0268 553963

George Thompson Services
Cucumber Hall Farm,
Cucumber Lane
Essendon
Herts AL9 6JB
☎ 0707 664 654

Goldstar Computers
PO Box 2
Tyldesley
Manchester M29 7BN
☎ 0942 895320

ICPUG
PO BOX 1309
London N3 2UT
☎ 081-346 0050

Kernow Software PD Library
51 Ennors Road
Newquay, Cornwall

NBS
1 Chain Lane, Newport
Isle Of Wight PO30 5QA
☎ 0983 529594

Neural Images
4 Flint Walk, Hartlepool
Cleveland TS26 0TE
☎ 0492 263508

Office Choice (OC-PD)
30 Town St, Kirkintilloch
Glasgow G66 1NL
☎ 0236 737901

PD Soft
1 Bryant Ave, Southend-On-Sea
Essex SS1 2YD
☎ 0702 612259

Pentire PD
10a Hag Hill Lane, Taplow
Maidenhead, Berks SL6 0JH
☎ 0628 666641

Public Dominator
PO BOX 801, Bishop's Stortford
Herts CM23 3TZ
☎ 0279 757692

Riverdene PDL
30a School Road
Tilehurst, Reading
Berkshire RG3 5AN
☎ 0734 452416

Telescan Computer Services
Handsworth Road
Blackpool FY5 1SB
☎ 0253 22296

Sector 16
160 Hollow Way, Cowley, Oxford
☎ 0865 774472

Seventeen Bit Software
PO BOX 97, Wakefield
West Yorks WF1 1XX
☎ 0924 366982

Software Expressions
Hebron House, Sion Road
Bedminster
Bristol BS3 3BD
☎ 0272 637634

Softville
Unit 5, Stratfield Park
Elettra Avenue,
Waterlooville
Hants
PO7 7XN
☎ 0705 266509

Start Computer Systems
20 Holmside
Sunderland
Tyne and Wear SR1 3JE
☎ 091 565 2506

Startronics
4 Arnold Drive, Droylsden
Manchester M35 6RE
☎ 061 370 9115

Unique Computing
114 Salters Road, Gosforth
Newcastle on Tyne, NE3 3UP
☎ 091-284 7976

Vally PD
PO BOX 15, Peterlee
Co Durham SR8 1NZ
☎ 091-587 1195

Wirral PD
PO Box 4, Birkenhead
Merseyside L43 4FW
☎ 051 651 0646



AMIGA PERIPHERALS

QUALITY AMIGA PERIPHERALS WITH A 2 YEAR WARRANTY

Silica Systems are pleased to present the GVP range of peripherals. GVP are the world's largest third party manufacturer of peripherals for the Amiga range and have a reputation for high specification, quality products. The company was founded only four years ago by a man who knows about the Amiga. Commodore's ex-Vice President of Technology. He, along with a team of Amiga experts including other ex-Commodore staff, understand the add-on requirements of Amiga owners better than anyone. Not only do GVP provide peripherals that Amiga owners want, they also offer peace of mind, with a 2 year warranty on the products they manufacture. So, if you are looking for the very best in peripherals for your Amiga computer, look no further than GVP.

PC EMULATOR

PLUG-IN OPTION FOR HD8+ & A530



- 16MHz 80286 processor
- 287 Maths Co-Processor socket
- 512K of PC RAM plus the use of Amiga RAM
- Supports Hercules, CGA, EGA/VGA (monochrome) and T3100 video modes
- Runs MS-DOS (3.2 and upwards) plus thousands of other PC programs

This powerful 286 emulator module simply plugs into the 'mini-slot' of the GVP HD8+ or A530 (without invalidating the warranty). It has full access to the Amiga's resources and allows you to run PC and Amiga programs at the same time, giving you two computers in one.

£249

GVP's HD8+ hard drive and A530 hard drive with 40MHz accelerator, represent the highest quality Amiga 500 peripherals at very affordable prices. Each incorporates a Quantum disk drive, RAM expansion capability, custom VLSI chip and FAAASTROM SCSI driver, for unbeatable performance.

The HD8+ hard drive offers up to 8Mb of standard internal Fast RAM expansion and the A530 Combo, up to 6Mb of 32-bit wide fast RAM expansion. Both feature a SCSI controller, which supports up to 8 additional devices, and an Autoboot/Game cut-off switch. Both are available in 52, 120 and 240Mb hard drive versions.

In addition, the A530 Combo zooms the Amiga forward with an 830 accelerator, running at a blistering 40MHz. This enables your Amiga 500 to run at an incredible 12.1 MIPS, faster than an Amiga 3000! No other product in the world combines all the features found in the A530 Combo! A plug-in PC emulator option, shown below, is available for both the HD8+ and A530 Combo.

HD8+ A530	
HARD DRIVE	
QUANTUM SCSI HARD DRIVE	52, 120 & 240Mb versions
ULTRA FAST 110ns ACCESS	
TRANSFER RATE UP TO 2.1MB/SEC*	(THE RATE OF THE 240Mb HD)
ACCELERATOR	
40MHz 80386 CPU	
OPTIONAL 287 MATHS CO-PROCESSOR	
RUNS AT 12.1 MIPS (12.1 TIMES AS FAST)	
HARDWARE SUPPORT TO MAP BOOTSTRAP INTO 32-BIT WIDE FAST RAM FOR FASTER OPERATION	(LATE LOADING THE OPERATING SYSTEM)
RAM BOARD	
UP TO 8Mb OF 32-BIT FAST RAM	(IN OR OUT OF THE 240Mb HD)
UP TO 6Mb OF 32-BIT WIDE FAST RAM	(IN OR OUT OF THE 240Mb HD)
1Mb POPULATED	
OTHER FEATURES	
80386/80387 'CUT-OFF' SWITCH FOR 100% GAME COMPATIBILITY	
SCSI CONTROLLER FOR UP TO 8 ADDITIONAL DEVICES	
VLSI CUSTOM CHIP	
FAASTROM SCSI DRIVER	
IDENTICAL COLOUR & STYLING TO THE AMIGA	
BUILT-IN VENTILATION FAN TO PREVENT THE UNIT FROM OVERHEATING	
DEDICATED POWER SUPPLY	
'MINI-SLOT' FOR FUTURE EXPANSIONS (E.G. PC EMULATOR)	
REMOVABLE MEDIA SUPPORT	
DIRECT MEMORY ACCESS (DMA) STYLE FOR ULTIMATE PERFORMANCE	
EASY TO-USE SOFTWARE	
2 YEAR WARRANTY	



WHAT THE PRESS SAY:
'Superb build, excellent aesthetics and blinding speed make this the best A500 hard drive' ... AMIGA SHOPPER
'GVP claims this is the fastest hard drive in the world and none of our tests could prove that wrong.' AMIGA SHOPPER
'Overall: Untouchable. THE choice' AMIGA SHOPPER
'Still the best hard drive' ... 92% AMIGA FORMAT

PLUG IN HARD DRIVES & ACCELERATORS

PRICES FROM:

£379

MODEL	52Mb HD	120Mb HD	240Mb HD
HARD DRIVE HD8+	£379	£499	£779
A530 COMBO	£749	£869	£1149

FOR ALL AMIGAS

AMIGA 1500 + 2000 + 3000 PRODUCTS



SOUND SAMPLER

- 8-bit stereo sampler
- Plugs into parallel port
- MIDI support for song input
- Extensive editing features

For the serious professional and audio hobbyist a high quality 8-bit stereo sound sampler that connects into the parallel port on any Amiga 1500, 2000, 3000 or 3000 computer. Combined with one of the fastest, most powerful and easy-to-use sound and music editing programs available. Includes 4-track soundtracker file compatible sequencer.

MUS 2500 **£59.95**



ACCELERATORS

- 68030/68030EC/68030 processor
- 25/40/50MHz clock speeds
- 68882 Maths co-processor
- Expands to 13/16/16Mb 32-bit RAM
- 32-bit SCSI controller on board

Fast 68030/68030EC accelerators with memory upgrade and SCSI interface boards. Each comes complete with a 68882 maths co-processor and RAM upgrade as standard. Kit available to mount 1" Hard Drive on any G-Force 030 Board. (GVA 4251) £29.95

25MHz/1Mb **£899**
 40MHz/4Mb **£999**
 50MHz/4Mb **£1399**



HARD CARDS

- Factory installed Hard Drives
- 32, 120, 240 & 420Mb options
- On-board 8Mb memory socket
- Add up to 8 SCSI devices
- Easy to install SIMMS

The Impact II HDs hard cards are the equivalent of the HD8+ hard drive, but for the 1500 and 2000 models. Not only are they some of the fastest hard drives available, but they also incorporate an unpopulated 8Mb RAM expansion board.

52Mb **£299**
 120Mb **£449**
 240Mb **£699**
 420Mb **£1299**



VIDEO ENHANCER

- 768 x 580 PAL Resolution
- Supports colour video, S-VHS & RGB
- Broadest quality palette
- Now with RGB splitter

Impact Vision 24 is the latest 24-bit Professional Video Adapter. It features 16 million colours on screen at once, built-in graphics, flicker free, frame buffer, frame grabber and digital filter. Supplied with Caligari/V24 3D modelling and rendering software, Scale V24 video timing software, plus Macro Paint 24-bit paint package. A1500/2000 requires additional adaptor. GVA 5224 £49.95

IV-24 - VHS SPLITTER **£1699**
 IV-24 - VHS TRANSCODER **£2099**



RAM BOARDS

- Up to 8Mb of FAST RAM
- Upgrade in 2Mb increments
- Supports industry standard RAM chips
- Diagnostic software included
- Fully auto-configuring

The RAM 8 offers an easy way to upgrade your 1500 or 2000 in 2Mb increments up to 8Mb. The RAM 8 is fully auto-configuring and is supplied with professional diagnostic software. 5Mb configuration supported for keyboardboard owners.

0Mb populated **£99**
 2Mb populated **£169**



REMOVABLE MEDIA

- Supports 44 or 88Mb removable media
- 20ms access time
- GVP HCB Controller option adds
- External case available for A500/5000

GVP offer Syquest drives with or without their HCB controller. They are available in 44Mb and 88Mb capacities and have a 20ms access time. Each drive comes with a removable cartridge.

44Mb (bare drive) **£449**
 44Mb (HCB) **£549**
 88Mb (bare drive) **£599**
 88Mb (HCB) **£699**

ALL PRICES INCLUDE VAT - DELIVERY IS FREE OF CHARGE IN THE UK MAINLAND

SILICA SYSTEMS OFFER YOU

- FREE OVERNIGHT DELIVERY:** On all hardware orders shipped in the UK mainland.
- TECHNICAL SUPPORT HELPLINE:** Team of technical experts at your service
- PRICE MATCH:** We normally match competitors on a "Same product - Same price" basis
- ESTABLISHED 12 YEARS:** Proven track record in professional computer sales.
- BUSINESS + EDUCATION + GOVERNMENT:** Volume discounts available 081-308 0888.
- SHOWROOMS:** Demonstration and training facilities at our London & Sidcup branches.
- THE FULL STOCK RANGE:** All of your requirements from one supplier.
- FREE CATALOGUES:** Will be mailed to you with offers and software/peripheral details.
- PAYMENT:** By cash, cheque and all major credit cards.

Before you decide when to buy your new Amiga products, we suggest you think very carefully about WHERE you buy them. Consider what it will be like a few months after you have made your purchase, when you may require additional peripherals and software, or help and advice. And, will the company you buy from contact you with details of new products? At Silica Systems, we ensure that you will have nothing to worry about. We have been established for over 12 years and, with our unrivalled experience and expertise, we can now claim to meet our customers' requirements with an understanding which is second to none. But don't just take our word for it. Complete and return the coupon now for our latest FREE literature and begin to experience the "Silica Systems Service".

MAIL ORDER HOTLINE
081-309 1111

SILICA SYSTEMS

MAIL ORDER: 1-4 The Mews, Hatherley Rd, Sidcup, Kent, DA14 4DX Tel: 081-309 1111
 Order Lines Open: Mon-Sat 9.00am-5.30pm No Late Night Opening Fax No: 081-308 0808

LONDON SHOP: 52 Tottenham Court Road, London, W1P 0BA Tel: 071-580 4000
 Opening Hours: Mon-Sat 9.30am-6.00pm No Late Night Opening Fax No: 071-583 4737

LONDON SHOP: Selfridges (10 Ffroy), Oxford Street, London, W1A 1AB Tel: 071-629 1234
 Opening Hours: Mon-Sat 9.30am-6.00pm Late Night: Thursday until 9pm Extension: 2014

SIDCUP SHOP: 1-4 The Mews, Hatherley Rd, Sidcup, Kent, DA14 4DX Tel: 081-302 8811
 Opening Hours: Mon-Sat 9.00am-5.30pm Late Night: Friday until 7pm Fax No: 081-309 0017

To: Silica Systems, AMSHP-0992-68, 1-4 The Mews, Hatherley Rd, Sidcup, Kent, DA14 4DX
PLEASE SEND A BROCHURE ON THE GVP RANGE

Mr/Mrs/Miss/Ms. Initials: Surname:
 Address:
 Postcode:
 Tel (Home): Tel (Work):
 Company Name (if applicable):
 Which computer(s), if any, do you own?
 68D

ACTION

THE WORLD'S CARTRIDGE IS

NOW WITH A MASSIVE
IN ROM OFFERING
MK II

JUST LOOK AT THE UNMATCHED RANGE OF FEATURES

● SAVE THE ENTIRE PROGRAM IN MEMORY TO DISK

Special compacting techniques enable up to 3 programs to fit on one disk. Now saves directly to disk as Amiga Dos - reloads independently of the cartridge - even transfer to hard drive! Works with up to 2 Megs of Ram - even 1 Meg Chip Mem (Fatter Agnus).

● SUPER POWERFUL TRAINER MODE

now with DEEP trainer. Even better than before - allows you to generate more or even infinite lives, fuel, ammo. Perfect as a Trainer Mode to get you past that "impossible" level. Easy to use.

● IMPROVED SPRITE EDITOR

The full Sprite Editor allows you to view/modify the whole sprite set including any "attached" sprites. PLUS A RANGE OF IMPROVED FEATURES.

● VIRUS DETECTION

Comprehensive virus detection and removal features to protect your software investment. Works with all presently known viruses.

● BURST NIBBLER.

Now this super disk copier program is built into Action Replay Mk III. Just imagine a superfast, efficient disk copier program at the press of a key - no more waiting.

● SAVE PICTURES AND MUSIC TO DISK

Pictures and sound samples can be saved to disk. Files are saved directly in IFF format suitable for use with all the major graphic and music packages. Samples are displayed as screen waveform.

● PAL or NTSC MODES SELECTABLE

Useful for removing ugly borders when using NTSC software. (Works only with newer Agnus chips).

● SLOW MOTION MODE

Now you can slow down the action to your own pace. Easily adjustable from full speed to 20% speed. Ideal to help you through the tricky parts!

● MANY MORE INSTANT CLI COMMANDS

like Rename, Relabel, Copy, etc.

● RESTART THE PROGRAM

Simply press any key and the program will continue where you left off.

● FULL STATUS REPORTING

At the press of a key now you can view the Machine Status, including Fast Ram, Chip Ram, RamDisk, Drive Status, etc.

● POWERFUL PICTURE EDITOR

Now you can manipulate and search for screens throughout memory. Over 50 commands to edit the picture plus unique on screen status "overlay" shows all the information you could ever need to work on screens. No other product comes close to offering such dynamic screen handling of frozen programs!!

● JOYSTICK HANDLER

allows the user to select Joystick instead of Keypresses - very useful for many keyboard programs.

● MUSIC SOUND TRACKER

With Sound Tracker you can find the complete music in programs, demos, etc. and save them to disk. Saves in format suitable for most track player programs. Works with loads of programs!!

● AUTOFIRE MANAGER

From the Action Replay III preference screen you can now set up autofire from 0 to 100%. Just imagine continuous fire power? Joystick 1 and 2 are set separately for that extra advantage!

● IMPROVED RAM EXPANSION SUPPORT.

Now many more external Ram Expansions will work with all Action Replay III commands.

● DOS COMMANDS

Now you have a selection of DOS commands available at all times - DIR, FORMAT, COPY, DEVICE, etc.

● FILE REQUESTOR

if you enter a command without a filename, then a file requestor is displayed.

● DISK COPY

Disk Copy at the press of a button - faster than Dos Copy. No need to load Workbench - available at all times.

● BOOT SELECTOR

Either DF0 or DF1 can be selected as the boot drive when working with Amiga Dos disks. Very useful to be able to boot from your external drive.

● PLUS IMPROVED DEBUGGER COMMANDS

including Mem Watch Points and Trace.

● DISKCODER

With the new "Diskcoder" option you can now 'tag' your disks with a unique code that will prevent the disk from being loaded by anyone else. 'Tagged' disks will only reload when you enter the code. Very useful for security.

DATTEL
Electronics
LIMITED

HOW TO GET YOUR ORDER FAST!

TELEPHONE [24Hrs] **0782 744707** CREDIT CARD ORDERS

ORDERS NORMALLY DISPATCHED WITHIN 48 Hrs. ALL CHEQUES/POSTAL ORDERS MADE PAYABLE TO...

DATTEL ELECTRONICS

GOVAN ROAD, FENTON INDUSTRIAL ESTATE, FENTON, STOKE-ON-TRENT,
ST4 2RS, ENGLAND. FAX 0782 744292 TECHNICAL/CUSTOMER SERVICE 0782 744324

DATTEL LONDON SHOP



222, TOTTENHAM COURT RD,
LONDON, W1, TEL: 071 5806460

ACTION REPLAY

MOST POWERFUL FREEZER-UTILITY

NOW EVEN BETTER!!

VE 256K OPERATING SYSTEM

A WHOLE NEW RANGE OF

I FEATURES

STILL ONLY

£59.99

AMIGA A500/500+
FOR 1500/2000 VERSION £69.99

AMIGA ACTION REPLAY SIMPLY PLUGS INTO THE
EXPANSION PORT OF YOUR AMIGA AND GIVES YOU THE
POWER TO FREEZE MOST ANY PROGRAM

NEW

SET MAP -

allows you to Load/Save/Edit a Keymap.

● PREFERENCES

Action Replay III now has screen colour preferences with menu setup. Customise your screens to suit your taste. Very simple to use.

IMPROVED PRINTER SUPPORT -

NEW

including compressed/small character command.

● DISK MONITOR

Invaluable disk monitor - displays disk information in easy to understand format. Full modify/save options.

PLUS A MACHINE CODE FREEZER MONITOR WITH EVEN MORE POWER!!

MORE FEATURES INCLUDING 80 COLUMN DISPLAY AND 2 WAY SCROLLING...

- Full M68000 Assembler/Disassembler
- Full screen editor
- Load/Save block
- Write String to memory
- Jump to specific address
- Show Ram as text
- Show frozen picture
- Play resident sample
- Show and edit all CPU registers and flag
- Calculator
- Help command
- Full search feature
- Unique Custom Chip Editor allows you to see and modify all chip registers - even write only registers!
- Notepad
- Disk handling - show actual track, Disk Sync. pattern etc.
- Dynamic Breakpoint handling
- Show memory as HEX, ASCII, Assembler, Decimal
- Copper Assemble/Disassemble - now with suffix names

**REMEMBER AT ALL TIMES YOU ARE INTERROGATING THE PROGRAM IN IT'S
"FROZEN" STATE WITH ALL MEMORY AND REGISTERS INTACT
- INVALUABLE FOR DE-BUGGING OR JUST THE INQUISITIVE!**

WARNING 1988 COPYRIGHT ACT WARNING

Datel Electronics Ltd., neither condones or authorises the use of its products for the reproduction of copyright material. The backup facilities of this product are designed to reproduce only software such as Public Domain material, the users own programs or software where permission to make backups has been clearly given. It is illegal to make copies, even for your own use, of copyright material, without the clear permission of the copyright owner, or the licensee thereof.



PRODUCT LOCATOR

SOFTWARE • SOFTWARE • SOFTWARE • SOFTWARE • SOFTWARE • SOFTWARE • SOFTWARE • SOFTWARE

Welcome to the *Amiga Shopper* Buyer's Guide, your regular guide to what's hot and what's not in the Amiga market place. It's designed as a simple-to-use yet comprehensive guide which will help you to make the right buying decisions. It may not include each and every product ever produced for the Amiga (that would take up virtually the whole of *Amiga Shopper!*), but rest

assured that all the major brands are here.

The Buyer's Guide will run each and every month and as new products are released and others discontinued, we'll be updating it accordingly. This month we bring you what is possibly the most comprehensive guide to software for the Amiga owner.

PAINT PROGRAMS

Product	Supplier	Price	Screen Modes	Max Colours	Overscan	Animation	Rating	Issue
MyPaint	HB Marketing	£20	L	12	No	No	***	2
The Graphics Studio	Accolade	£50	L/M	32	No	No	***	2
Deluxe Paint 3	Electronic Arts	£70	L/LI/M/H	64	Yes	Yes	*****	2
Deluxe Paint 4	Electronic Arts	£90	L/LI/M/H	4096	Yes	Yes	*****	10
Deluxe PhotoLab	Electronic Arts	£130	L/LI/M/H	4096	Yes	No	***	2
DigiPaint 3	Silica Systems	£80	L/LI	4096	Yes	No	****	2
Photon Paint 2	MicroIllusions	£90	L/LI	4096	Yes	Yes	*****	2
SpectraColour	HB Marketing	£60	L/LI	4096	Yes	Yes	***	5

L-Low Res, LI-Low Res Interlaced, M-Medium, H-High Res

ANIMATION SOFTWARE

Product	Supplier	Price	ANIM Compat	Onion Skin	X-Sheet	Sound	Rating	Issue
Disney Animation Studio	Silica	£80	Yes	Yes	Yes	Yes	****	1
Fantavision	HB Marketing	£50	No	No	No	Yes	****	14
MovieSetter	Silica	£80	No	No	No	Yes	****	14
Take-2	Rombo	£95	No	No	Yes	Yes	****	14

SOLID MODELLING/RAY TRACING

Product	Supplier	Price	Ray Tracing	24-bit	Animation	Bump Maps	Textures	Rating	Issue
Real 3D 1.4	Alternative Image	£120	Yes	Yes	Yes	Yes	Yes	*****	4,7
Imagine	Silica	£235	Yes	Yes	Yes	No	Yes	*****	4,7
3D professional	Marcam	£260	Yes	Yes	Yes	No	Yes	***	7
Draw 4D	Surface UK	£150	No	No	Yes	No	Yes	***	7
Sculpt 4D	Alternative Image	£400	Yes	Yes	Yes	No	Yes	*****	7
Imagine 2	Computech	£270	Yes	Yes	Yes	Yes	Yes	****	14
RayDance	Radiance	£100	Yes	Yes	No	Yes	Yes	***	14

MISC GRAPHICS

Product	Supplier	Price	Type	Rating	Issue
VistaPro	HB Marketing	£100	Fractal Landscapes	*****	7
Genesis	MicroIllusions	£50	Fractal Landscapes	****	11

IMAGE PROCESSORS

Product	Supplier	Price	24-bit	Max Colours	File Formats	Composition	Colour Control	Rating	Issue
Art Department	Silica	£100	Yes	16.7 m	Many	No	Yes	****	-
Art Department Pro	Silica	£200	Yes	16.7 m	Many	Yes	Yes	*****	10
PIXmate	Precision	£70	No	4096	IFF, Neo	No	Yes	****	-
Butcher 2	HB Marketing	£50	No	4096	IFF	No	Yes	***	-

PAGE LAYOUT SYSTEMS

Product	Supplier	Price	Outline Fonts	Pantone	Postscript	24-bit Col	Colour Sep	Rating	Issue
PageStream 2.2	Silica	£200	Yes	No	Yes	Yes	Yes	***	2,3
ProPage 2.1	Silica	£250	Yes	Yes	Yes	Yes	Yes	*****	1,17
Saxon Publisher	Surface UK	£250	Yes	No	Yes	Yes	Yes	***	17
PageSetter 2	Silica	£100	Yes	No	No	No	No	***	-
Shakespeare	Cloudhall	£100	No	No	Yes	No	Yes	***	-
CityDesk	Precision	£130	No	No	Yes	No	No	**	-
ProPage 3.0	Silica	£250	Yes	Yes	Yes	Yes	Yes	*****	17

STRUCTURED DRAWING PROGRAMS

Product	Supplier	Price	Bezier Curves	Postscript	Outline Fonts	EPS compat	Rating	Issue
ProDraw 2.1	Silica	£132	Yes	Yes	Yes	Yes	*****	-
DesignWorks	Silica	£100	Yes	Yes	Yes	No	**	-
ProDraw 3.0	Silica	£132	Yes	Yes	Yes	Yes	****	-
Expert Draw	HB Marketing	£70	Yes	Yes	Yes	Yes	***	14

CAD PACKAGES

Product	Supplier	Price	DXF Compat	No. Of layers	Vector Fonts	PostScript	Rating	Issue
DynaCADD	ExpressWorks	£650	Yes	256	Yes	Yes	****	3

PRODUCT LOCATOR

X-CAD 2000	Digital Multimedia	£129	Yes	255	Yes	With util included	****	-
X-CAD 3000	Digital MultiMedia	£300	Yes	255	Yes	With util included	*****	-
UltraDesign	Marcam	£200	Yes	128	Yes	Yes	***	-

WORD PROCESSORS

Product	Supplier	Price	Spell Checker	Thesaurus	Picture Import	Rating	Issue
Scribble!	HB Marketing	£30	Yes	No	No	***	6,9
Transwrite	HB Marketing	£40	Yes	No	No	***	6,9
Pen Pal	Harwoods	£80	Yes	No	Yes	****	6,9
Kind Words 2	HB Marketing	£50	Yes	No	Yes	**	6,9
Protext 5.5	Arnor	£150	Yes	Yes	No	*****	6,9
Wordworth	Digita	£130	Yes	No	Yes	****	4,6,9
Excellence 2	HB Marketing	£130	Yes	Yes	Yes	****	6,9
ProWrite 3.2	Silica	£143	Yes	Yes	Yes	***	12
Word Perfect	Sentinel	£230	Yes	Yes	No	***	-
Final Copy	Gordon Harwood	£TBA	Yes	Yes	Yes	****	15

DATABASES

Product	Supplier	Price	Type	Programmable	dBASE Compatible?	Rating	Issue
Infofile	HB Marketing	£50	Card Index	No	No	***	9
ProData 1.2	Arnor	£100	Card Index	No	Yes	****	9
SuperBase	Precision	£30	Relational	No	Yes	****	9
SuperBase 2	Precision	£100	Relational	No	Yes	****	9,12
SuperBase Pro 4	Precision	£400	Relational	Yes	Yes	*****	4,9
Organize 2	HB Marketing	£62	Relational	No	Yes	***	-

SPREADSHEETS

Product	Supplier	Price	Lotus Compatibility	Graphs	Rating	Issue
SuperPlan	Precision	£80	Yes	Yes	***	9
Analyze!	Precision	£50	Yes	Yes	***	9
Maxiplan 500	HB Marketing	£80	Yes	Yes	***	9
ProCalc	Silica	£150	Yes	Yes	*****	-
Advantage	Silica	£100	Yes	Yes	****	1,9
K-Spread 3	Kuma	£70	Yes	Yes	***	9
K-Spread 4	Kuma	£100	Yes	Yes	****	9
DGCalc	Digita	£40	No	No	**	-
Analyze 2	HB Marketing	£50	Yes	Yes	***	-

MULTIMEDIA

Product	Supplier	Price	Interactive	External Drivers	ARexx	Rating	Issue
Presentation Master	HB Marketing	£350	Yes	No	No	****	9
HyperBook	Silica	£100	Yes	No	Yes	****	6
AmigaVision	Commodore	£80	Yes	Yes	Yes	****	-
CanDo 1.5	Checkmate Digital	£130	Yes	No	Yes	*****	-
Viva!	MicroDeal	£200	Yes	Yes	No	**	-

VIDEO TITLERS

Product	Supplier	Price	Overscan	Transitions	Amiga Fonts	Horiz Crawl	Rating	Issue
Broadcast Titler 2	HB Marketing	£234	Yes	Yes	No	Yes	****	2
Scala 1.1	Silica	£250	Yes	Yes	Yes	No	*****	2
Scala 500	Silica	£100	Yes	Yes	Yes	No	****	-
Alternative Scroller	Alternative Image	£50	Yes	No	No	Yes	***	-
Home Titler	HB Marketing	£40	Yes	No	No	Yes	***	9
ProTitler	HB Marketing	£100	Yes	Yes	Yes	Yes	***	9
Video Caption Designer	Maze	£200	Yes	No	Yes	Yes	***	3
Video Ease	Interactive Tchnlgy	£40	Yes	Yes	Yes	Yes	**	11

DTV UTILITIES

Product	Supplier	Price	Type	Rating	Issue
AntiA	Zen	£40	Font Enhancer	****	8
BT2 Font Enhancer	HB Marketing	£130	Font Enhancer	***	8
ShowMaker	Silica	£250	Presentation System	***	10
Elan Performer 2	Silica	£180	Presentation System	****	11
Deluxe Video 3	Electronic Arts	£100	Presentation System	****	-

MIDI SEQUENCERS

Product	Supplier	Price	No. of Tracks	Amiga Smpls	Song Arrange	Rating	Issue
Sequencer One	Gajits	£90	20	Yes	Yes	****	2

PRODUCT LOCATOR

Bars&Pipes Pro	Zone	£200	Unlimited	Yes	Yes	*****	3
Pro-24	Evenlode	£300	24	No	Yes	***	4
Harmoni	HB Marketing	£50	24	Yes	No	***	7
KCS 3.5	Zone	£280	48	Yes	Yes	*****	8
Tiger Cub	Zone	£100	12	Yes	Yes	****	-
Music-X	MicroIllusions	£150	256	Yes	No	****	-
Music-X Junior	MicroIllusions	£50	256	Yes	No	****	-
Master Tracks	MCM	£200	64	No	Yes	***	-
Trax	MCM	£70	64	No	Yes	*****	-
Sequencer One Plus	Gadgets	£50	32	Yes	Yes	****	16

MISC MIDI SOFTWARE

Product	Supplier	Price	Type	Rating	Issue
X-Or	Zone	£220	Librarian	****	6
CMParion	Gadgets	£100	Patch Editor	****	6
Caged Artist	Zone	£100	Patch Editor	***	6
Copyist Apprentice	Zone	£100	Score Notation	****	-
Copyist DTP	Zone	£230	Pro Score Notation	****	-
Audition 4	HB Marketing	£50	Sample Editor	*****	10
AudioMaster 4	HB Marketing	£80	Sample Editor	*****	-
Audio Sculpture	SMG	£50	Sample Sequencer	**	12
Quartet	MicroDeal	£50	Sample Sequencer	***	-
Mugician	Thalamus	£30	Sample Sequencer	***	-
Music Studio	HB Marketing	£25	Sample Sequencer	**	-
TFMX	HB Marketing	£45	Sample Sequencer	***	-
OctaMED 2	AmigaNuts	£20	Sample Sequencer	*****	-
SuperJAM!	Blue Ribbon Sound.	£100	Algorithmic Composition	****	15

EDUCATIONAL SOFTWARE

Product	Supplier	Price	Type	Rating	Issue
Learn to Read With Prof	Prisma	£25	Reading	***	2
The Three Bears	School Software	£23	Reading	***	2
Donald's Alphabet	Entertainments Int.	£25	Reading	***	2
Case					
Let's Spell	Softstuff	£20	Writing	****	2
Things To Do With Words	Softstuff	£20	Writing	***	2
Kids Type	GeniSoft	£25	Writing	****	2
Mickey's Zoo	Entertainments Int.	£25	Maths	***	2
Game, Set & Match	GeniSoft	£21	Maths	**	2
Magic Maths	School Software	£23	Maths	***	2
Fun School 3	Europress	£25	3 'R's	*****	2
Fun School 4	Europress	£25	3 'R's	*****	9
Puzzle Book 1	Softstuff	£20	3 'R's	****	2
Sesame Street	Merit Software	£16	Painting	***	2
Play It Safe	Deja Vu	£3.50	General	****	2
Pick A Puzzle	Deja Vu	£2.50	Jigsaw	***	2
Hooray For Henrietta	Sketlander	£25	Maths	***	2
Back To Basics	HB Marketing	£40	Maths	***	9
Maths Adventure	HB Marketing	£26	Maths	****	9
Spell	Europress	£9	Writing	***	3
Maths Blaster Plus	Ablac Computer	£40	Maths	***	3
Maths Mania	School Software	£23	Maths	****	3
Better Spelling	School Software	£23	Writing	****	3
Answer Back Quiz	Kosmos	£20	3 'R's	****	3
Weather Watcher	GeniSoft	£25	Weather	***	4
What Is It?	GeniSoft	£20	Geography	****	4
Better Maths	School Software	£23	Maths	***	4
French Mistress	Kosmos	£20	French	****	4
Mr Robot's	HB Marketing	£25	Writing	***	6
Speak&Spell					
Early Learning Maths	ESP Software	£20	Maths	***	6
Spellicopter	ESP Software	£20	Writing	****	6
Spell Book	SoftStuff	£8	Writing	****	6

PRODUCT LOCATOR

Cave Maze	Coombe Valley	£12	Quiz	***	7
Maths Dragons	Coombe Valley	£12	Maths	***	7
Shapes & Colours	Rainbow	£8	Basic	****	7
First Letters	Rainbow	£8	Reading	***	7
Reasoning With Trolls	Coombe Valley	£15	Quiz	****	8
Spellbound	Lander Software	£26	Writing	****	10
Count & Add	Lander Software	£26	Maths	****	10
Pepe's Garden	Prisma	£26	3 'R's	****	10
Picture Book	Triple 'R' Education	£20	3 'R's	****	10
Money Matters	Triple 'R' Educational	£20	Money	*****	-
Maths Adventure	Kosmos	£26	Maths	***	12
Compendium Six	HB Marketing	£35	Six educational programs	****	14

PROGRAMMING LANGUAGES

Product	Supplier	Price	Language	Compiler	Rating	Issue
GFA BASIC 3.5	GFA Data Media	£50	BASIC	Separate	****	3,9
GFA Compiler	GFA Data Media	£30	Compiler	-	****	3,9
Blitz	Siren Software	£70	BASIC	Yes	***	3,9
AMOS	Europress	£50	BASIC	Separate	****	3,9
AMOS Compiler	Europress	£30	Compiler	Yes	****	5,9
AMOS 3D	Europress	£30	BASIC Extension	-	****	5,7
AMOS Tome	Deja Vu	£30	BASIC Extension	-	****	11
Easy AMOS	Europress	£35	BASIC	No	****	12
HiSoft BASIC	HiSoft	£50	BASIC	Yes	****	9
RQ Forth	HB Marketing	£80	Forth	Yes	****	9
Lattice C 5	HiSoft	£230	C	Yes	****	3,9
Aztec C	Precision	£130	C	Yes	****	9
M2 Amiga	Real Time	£125	Modula-2	Yes	****	7,9
ArgAsm	HB Marketing	£60	Assembly	-	***	9
Devpac 3	HiSoft	£70	Assembly	-	****	10,12

UTILITIES

Product	Supplier	Price	Type	Rating	Issue
Ami-Back 1.4	Omega Projects	£50	Hard Disk Backup	****	9
QuarterBack	HB Marketing	£50	Hard Disk Backup	****	5
Personal Fonts Maker	HB Marketing	£70	Bitmap Font Editor	***	7
GB Route Plus	Complex Computers	£80	Journey Planner	****	10
GB Route Plus Edit	Complex Computers	£30	Editor For GBRoute	****	10
Flow 3.0	Silica	£80	Ideas Processor	***	10
Turbo Print Pro	HB Marketing	£50	Enhanced Printing	****	11,12
Directory Opus	Checkmate Digital	£40	Directory Utility	****	-
MapMaster	Alternative Image	£54	Image Mapping package	****	14
SurfaceMaster	Alternative Image	£28	Add on for Imagine	****	14
Touch Typist	Sector Software	£14	Teach yourself touch typing	****	15
SaxonScript	Surface UK	£100	Postscript interpreter	***	15
Smooth Talker	Zen Computers	£140	Video Prompting package	****	16
HotLinks	Silica	£70	Add on for PageStream 2.2	**	16
Shades	Meridian Software	£60	Gradient fills for PageStream	**	16
Hit Kit!	Gadgets	£25	Sequences for Sequencer One	***	16

SUPPLIER LIST • SUPPLIER LIST • SUPPLIER LIST • SUPPLIER LIST • SUPPLIER

Ablac Computec	0626 331464	Deja Vu	0942 495261	GeniSoft	0753 686000	Meridian	0533 896743	School	010 353 61 45399
Accolade	071 738 1391	Digital	0395 270273	GFA Data Media	0734 794941	Merit	0101 214 385 2353	Software	
Alternative Image	0533 440041	Digital Multimedia	0702 206165	Harwoods	0773 836781	Software		Sentinel	0932 231164
Amiga Centre	031 557 4242	Electronic Arts	0753 549442	HB Marketing	0753 686000	MicroIllusions	0480 496497	Silica	081 309 1111
Scotland		Entertainments Int	0268 541212	HiSoft	0525 718181	Omega Projects	0925 763946	Siren Software	061 724 7572
Arnor	0733 68909	ESP Software	0702 600557	Interactive	0423 501321	Precision	081 330 7166	Sketlander	041 357 1659
Checkmate Digital	071 923 0658	Europress	051 357 1275	Technology		Prisma Software	0244 326244	SMG	0274 562999
Cloudhall	0604 231211	EvenLode	0993 898484	Kosmos	0525 53942	Radiance	0101 408 270 7420	Softstuff	0732 351234
Commodore	0628 770088	SoundWorks		Kuma	0734 844335	Rainbow	0392 77369	Surface UK	081 566 6677
Complex Computers	0706 224531	ExpressWorks	0252 726255	Lander Software	041 357 1659	Real Time	081 656 7333	Triple 'R'	0742 780370
Computech	0702 206165	Gadgets Music	061 236 2515	Marcam Ltd	071 258 3454	Associates		Software	
Coombe Valley	0626 779695	Software		MCM	081 963 0663	Rombo Productions	0506 466601	Zone	081 7666564

BUYING ADVICE FOR SHOPPERS

Whether buying over the phone or at a local store, here's our advice on how to get what you want

BUYING IN PERSON

- Where possible, always test any software and hardware in the shop before taking it home, to make sure that it works properly.
- Make sure you have all the necessary leads, manuals or other accessories you need.
- Don't forget to keep your receipt.

BUYING BY PHONE

- Be as clear as possible when stating what you want to buy. Make sure you confirm all the technical details of what you are buying. Some things to bear in mind are version numbers, memory requirements, other required hardware or software and compatibility with your particular model of Amiga (that is, make sure you know which version of Kickstart you have).
- Check the price you are asked to pay, and make sure that it's the same as the price advertised.

- Check that what you are ordering is actually in stock.
- Check when and how the article will be delivered, and that any extra charges are as stated on the advert.
- Make a note of the date and time when you order the product.

BUYING BY POST

As with buying by phone, you should clearly state exactly what it is you are buying, at what price (refer to the magazine, page and issue number where it's advertised) and give any relevant information about your system set-up where necessary. You should also make sure you keep copies of all correspondence both to and from the company concerned.

MAKING RETURNS

Whichever method you buy by, you are entitled to return a product if it fails to meet any one of the following three criteria:

- The goods must be of 'merchantable quality'.
 - The goods must be 'as described'.
 - The goods must be fit for the purpose for which they were sold.
- If they fail to satisfy any or all of the criteria, then you are then entitled to:
- Return them for a refund.
 - Receive compensation for part of the value.
 - Get a replacement or free repair.
- When returning anything, ensure that you have proof of purchase and that you return the item as soon as possible after receiving it. For this reason it is important that you check the hardware or software as soon as it is delivered to make sure everything you ordered is there and works as it is supposed to.

HOW TO PAY

Paying by credit card is the most sensible way, whether buying in person, by post or on the phone, because you may be able to claim the money from the credit card company even if the firm you ordered from has gone bust or refuses to help sort out your problem.

Otherwise, you should pay by crossed cheque or postal order – never send coins or notes through the mail.

GETTING REPAIRS

Always check the conditions of the guarantee, and servicing and replacement policy, so that you know what level of support to expect. Always fill in and return warranty cards as soon as possible, and make sure that you are aware of all the conditions contained in the guarantee.

BUYING PD

Even though PD software is relatively inexpensive, you should still apply the guidelines set out above, making sure that you confirm all orders as clearly as possible.

Shopping around is still important when buying PD because different houses charge different prices for the same disks. There is no set pricing structure for disks, but bear in mind that PD houses are, in theory, supposed to be non-profit making operations. **AS**

A CHECK LIST FOR MAIL ORDER BUYING

- 1 Make sure you know exactly what you want. Draw up a checklist of the specifications you are looking for and what you want it to be able to do. Check with the suppliers that their product matches your list
- 2 Will the product you have in mind work with your existing set-up, and anything else you are planning to buy?
- 3 Can you see a demonstration? Many products are on display at computer shows around the country.
- 4 Are there any hidden extras? Does it need 1Mb to run, or a hard disk?
- 5 What technical support is provided by the supplier? Does the manufacturer offer after-sales advice? Check before you buy.
- 6 Check the guarantee terms. How long is the free warranty? What does it offer?
- 7 Draw up a list of these details and make them a condition of your order.
- 8 Check the price and delivery details when you order, and make a note of them.
- 9 Note down when you placed the order and who you spoke to.
- 10 When it arrives, check everything carefully. If anything is missing, don't use the product at all – contact the supplier. If it doesn't work, make the obvious checks such as the fuse. If it still doesn't work don't try to fix it – contact the supplier.

ADVERTISERS INDEX

1st Choice (Leeds).....	66 & 67
16 Bit Centre.....	108
316 Supplies.....	20
Accelerators Unlimited.....	115
Advanced Electronics.....	115
Anglia PD.....	129
Arnor.....	116
Artworks.....	115
BCS.....	57
Commodore (UK).....	4
Datel Electronics.....	138-139
Delta Pi.....	24
Deltrax PD.....	129
Diamond.....	104-107
Digit.....	9
Direct Computers.....	89
Dynamite.....	90-91
EMC.....	65
Evesham Micros.....	82-83
Express PD.....	131
Futureworld.....	42-43
Grapevine.....	24
Harwoods.....	92,98-101
Hobbyte.....	74-75
Home Based Business.....	132
LCL.....	73
Magic Clip-Art Company.....	132
Merlin.....	148
MJC Supplies.....	36
Olympic Disks.....	129
Omega Projects.....	68
PD Soft.....	125
Phoenix.....	34-35
Power Computing.....	2,41,147
Prodisc.....	132
Sector Software.....	24
Shadow Software.....	102
Silica Systems.....	137,145
Snap.....	131
Softstore.....	73
Startronics.....	131
Switchsoft.....	115
Trilogic.....	58-59
Videoware.....	73
Weserve.....	6
WTS Electronics.....	87-97
York Electronics.....	132
Zye Technology.....	33

CITIZEN

DOT MATRIX PRINTERS

INK JET AND NOTEBOOK

ALWAYS A GOOD IDEA

Silica presents some great offers on the award winning range of high quality matrix printers from Citizen. Each Citizen printer is built in the UK to exacting standards, ensuring superb reliability and output. Our confidence in Citizen's quality is such that we are pleased to include a 2 year guarantee with every printer. Plus, if you buy a Citizen printer (not inkjet) from us, we will give you the Silica Printer Starter Kit (worth £29.38), **FREE OF CHARGE!**

FREE DELIVERY
Next Day - Anywhere in the UK mainland

FREE STARTER KIT
Worth £29.38 - With every Citizen printer (excluding inkjet) from Silica

2 YEAR WARRANTY
Silica offer a 2 year warranty (including the dot matrix printer head) with every Citizen printer

WINDOWS 3.0
Free Windows 3.0 driver - Included with the Silica Starter Kit

FREE COLOUR KIT
With every Prod9, Swift 9 & 24 and 224

FREE HELPLINE
Technical support helpline open during office hours

MADE IN THE UK
Citizen printers are manufactured to high standards

LOW PRICE 9 PIN PRINTER



144 CPS
• Citizen 120D+ - 9 pin - 80 column
• 144cps Draft, 30cps NLQ
• 4K Printer Buffer + 2 Fonts
• Parallel or Serial Interface
• Graphics Resolution: 240 x 240dpi
• Epson and IBM Emulation
• Pull tractor & bottom feed
• **FREE Silica Printer Starter Kit**

80 COLUMN

£115
+VAT= £135.13 ref. PRI 2120

RRP £199
SILICA STARTER KIT £25
TOTAL VALUE £224
SAVING £109
SILICA PRICE £115

The Citizen 120D printer comes supplied with a parallel interface as standard. If you require a serial interface instead, please state ref. PRI 2125 when placing your order with Silica.

9 PIN PRINTERS



FREE COLOUR KIT

300 CPS
• Citizen Prod9 - 9 pin - 80 column
• 300cps Draft, 60cps NLQ
• 8K Printer Buffer + 3 Fonts
• Parallel Interface
• Graphics Resolution: 240 x 240dpi
• Epson and IBM Emulation
• **FREE Colour Kit**
• **FREE Silica Printer Starter Kit**

RRP £189
COLOUR KIT £21
SILICA STARTER KIT £25
TOTAL VALUE £235
SAVING £105
SILICA PRICE £115

£189
+VAT= £222.09 ref. PRI 2319



FREE COLOUR KIT

192 CPS
• Citizen Swift 9 - 9 pin - 80 column
• 192cps Draft, 48cps NLQ
• 8K Printer Buffer + 3 Fonts
• Parallel Interface
• Graphics Resolution: 240 x 240dpi
• Epson and IBM Emulation
• **FREE Colour Kit**
• **FREE Silica Printer Starter Kit**

RRP £239
COLOUR KIT £24
SILICA STARTER KIT £25
TOTAL VALUE £288
SAVING £115
SILICA PRICE £189

£189
+VAT= £222.76 ref. PRI 2320



192 CPS
• Citizen Swift 9k - 9 pin - 136 column
• 192cps Draft, 48cps NLQ
• 8K Printer Buffer + 3 Fonts
• Parallel Interface
• Graphics Resolution: 240 x 240dpi
• Epson and IBM Emulation
• Colour Option Available
• **FREE Silica Printer Starter Kit**

RRP £329
SILICA STARTER KIT £25
TOTAL VALUE £354
SAVING £105
SILICA PRICE £249

£249
+VAT= £292.56 ref. PRI 2321

24 PIN PRINTER



NEW! LIMITED OFFER

FREE COLOUR KIT

PRINTER + SOFTWARE + COLOUR

• Citizen Swift 24 - 24 pin - 80 column
• 216cps Draft, 72cps LQ
• 8K Printer Buffer + 6 Fonts
• Parallel Interface
• Graphics Resolution: 360 x 360dpi
• Epson, IBM & NEC P6 Emulation
• **FREE Colour Kit**
• **FREE Silica Printer Starter Kit**
• **FREE Lotus Ami 1.2 Word Processor and DTP package**
• **FREE Adobe Type Manager V1.15**
Lotus & Adobe software is for PC only on 3 1/2" disk

RRP £289
COLOUR KIT £24
SILICA STARTER KIT £25
LOTUS AMI 1.2 WORD/TP PACKAGE £95
ADOBE TYPE MANAGER V1.15 (PC) £79
TOTAL VALUE £500
SAVING £237
SILICA PRICE £269

£269
+VAT= £315.06 ref. PRI 2544



24 PIN PRINTERS



FREE COLOUR KIT

192 CPS
• Citizen 224 - 24 pin - 80 column
• 192cps Draft, 64cps LQ
• 8K Printer Buffer + 4 Fonts
• Parallel Interface
• Graphics Resolution: 360 x 360dpi
• Epson and IBM Emulation
• **FREE Colour Kit**
• **FREE Silica Printer Starter Kit**

RRP £389
COLOUR KIT £24
SILICA STARTER KIT £25
TOTAL VALUE £438
SAVING £133
SILICA PRICE £305

£199
+VAT= £232.83 ref. PRI 2464



192 CPS
• Citizen Swift 24x - 24 pin - 136 column
• 192cps Draft, 64cps NLQ
• 8K Printer Buffer + 4 Fonts
• Parallel Interface
• Graphics Resolution: 360 x 360dpi
• Epson, IBM and NEC P6 Emulation
• Colour Option Available
• **FREE Silica Printer Starter Kit**

RRP £489
SILICA STARTER KIT £25
TOTAL VALUE £514
SAVING £137
SILICA PRICE £377

£349
+VAT= £413.09 ref. PRI 2574

INKJET PRINTER



360 CPS
• Citizen Proj4 - Inkjet - 80 column
• 360cps Draft, 120cps NLQ
• 50 Nozzle Head - Whisper Quiet 47dB(A)
• 8K Printer Buffer + 3 Fonts
• Optional HP Compatible Font cards
• Parallel Interface
• Graphics Resolution: 300x300dpi
• HP Deskjet plus emulation

RRP £499
TOTAL VALUE £499
SAVING £137
SILICA PRICE £359

£359
+VAT= £421.81 ref. PRI 2609

NOTEBOOK PRINTER



64 CPS
• Citizen PN48 Notebook Printer
• Non-impact Printing on Plain Paper
• 53cps LQ + 4K Buffer + 2 Fonts
• Rear and Bottom Paper Loading
• Parallel Interface
• Graphics Resolution: 360 x 360dpi
• Epson, IBM, NEC P6 & Citizen Emulation
• Powered From Mains, Battery or Car Adaptor
• **FREE Silica Printer Starter Kit**

RRP £329
SILICA STARTER KIT £25
TOTAL VALUE £354
SAVING £101
SILICA PRICE £249

£249
+VAT= £292.56 ref. PRI 2109

FREE! STARTER KIT

This starter kit will help you to get your dot matrix printer up and running with your new Citizen dot matrix or notebook printer. From Silica Systems, Plus, for a limited period only, we are including a Citizen Printer Starter Kit for the Amiga free of charge as part of the Silica Starter Kit. Bringing the total value of the free kit up to £144.23.

• 3 1/2" Disk - Amiga & 512 Divides
• 1 1/2" Disk - Divides for Windows 1
• 2 Meme Printer Driver Card
• 200 Sheets of Continuous Paper
• 100 Continuous Address Labels
• 5 Continuous Envelopes
• Amiga Font Manager

The Amiga Font Manager is a unique software program which allows you to create your own fonts for all your printing and replace any of the standard fonts. It's a great way to make your graphics and text look like you're a professional.

Features include:
• Improved Image Smoothing
• Dynamic Colour Correction
• Image Scaling
• Colour Separation
• Reduces/Minimises Banding

STARTER KIT £29.38
AMIGA PRINT MANAGER £14.85
TOTAL VALUE £44.23

ACCESSORIES

SHEET FEEDERS
PRA 1000 1200 £17.50
PRA 1215 1250/2400mm 900 £26.25
PRA 1220 1240/2400mm 900 £45.00

SERIAL INTERFACES
PRA 1115 1200 £29.00
PRA 1220 1240/2400mm 900 £22.50
PRA 1220 1240/2400mm 900 £22.50

32K MEMORY EXPN
PRA 1220 1240/2400mm 900 £19.00

PRINTER STAND
PRA 1220 1240/2400mm 900 £24.00
PRA 1220 1240/2400mm 900 £24.00

ORIGINAL RIBBONS
RIB 2200 1200/2400mm 900 £7.50
RIB 2200 1240/2400mm 900 £7.50
RIB 2200 1240/2400mm 900 £7.50
RIB 2200 1240/2400mm 900 £7.50
RIB 2200 1240/2400mm 900 £7.50

COLOUR KITS
PRA 1220 1240/2400mm 900 £25.25
PRA 1220 1240/2400mm 900 £25.25

PN48 ACCESSORIES
PRA 1115 1200/2400mm 900 £21.00
PRA 1115 1200/2400mm 900 £21.00
PRA 1115 1200/2400mm 900 £21.00
PRA 1115 1200/2400mm 900 £21.00

Accessories prices inc. VAT & delivery

SILICA SYSTEMS OFFER YOU

- **FREE OVERNIGHT DELIVERY:** On all hardware orders shipped in the UK mainland.
- **TECHNICAL SUPPORT HELPLINE:** Team of technical experts at your service.
- **PRICE MATCH:** We normally match competitors on a "Same product - Same price" basis.
- **ESTABLISHED 12 YEARS:** Proven track record in professional computer sales.
- **BUSINESS + EDUCATION + GOVERNMENT:** Volume discounts available 081-308 0888.
- **SHOWROOMS:** Demonstration and training facilities at our London & Sidcup branches.
- **THE FULL STOCK RANGE:** All of your requirements from one supplier.
- **FREE CATALOGUES:** Will be mailed to you with offers and software/peripheral details.
- **PAYMENT:** By cash, cheque and all major credit cards.

Before you decide when to buy your new printer, we suggest you think very carefully about WHERE you buy it. Consider what it will be like a few months after you have made your purchase, when you may require additional peripherals or software, or help and advice with your new purchase. And, will the company you buy from contact you with details of new products? At Silica Systems we ensure that you will have nothing to worry about. We have been established for over 12 years and, with our unrivalled experience and expertise, we can now claim to meet our customers' requirements with an understanding which is second to none. But don't just take our word for it. Complete and return the coupon now for our latest FREE literature and begin to experience the "Silica Systems Service".

MAIL ORDER HOTLINE
081-309 1111

SILICA SYSTEMS

MAIL ORDER: 1-4 The Mews, Hatherley Rd, Sidcup, Kent, DA14 4DX Tel: 081-309 1111
Order Lines Open: Mon-Sat 9.00am-6.00pm Fax No: 081-308 0608
No Late Night Opening

LONDON SHOP: 52 Tottenham Court Road, London, W1P 0BA Tel: 071-580 4000
Opening Hours: Mon-Sat 9.30am-6.00pm Fax No: 071-323 4737
No Late Night Opening

LONDON SHOP: Selfridges (1st floor), Oxford Street, London, W1A 1AB Tel: 071-629 1234
Opening Hours: Mon-Sat 9.30am-6.00pm Lake Night: Thursday until 8pm Extension: 3914

SIDCUP SHOP: 1-4 The Mews, Hatherley Rd, Sidcup, Kent, DA14 4DX Tel: 081-302 8811
Opening Hours: Mon-Sat 9.00am-6.00pm Late Night: Friday until 7pm Fax No: 081-309 0017

To: Silica Systems, AMSHP-0992-80, 1-4 The Mews, Hatherley Rd, Sidcup, Kent, DA14 4DX

PLEASE SEND A BROCHURE ON THE CITIZEN RANGE

Mr/Mrs/Miss/Ms: Initials: Surname:

Address:

Postcode:

Tel (Home): Tel (Work):

Company Name (if applicable):

Which computer(s), if any, do you own? 55G

WIN • WIN • WIN • WIN • WIN • WIN • WIN • WIN

Win six books and master the Amiga

We have five sets of Bruce Smith Books' six volume Mastering Amiga collection to give away, worth over £650 in total

Everything you always wanted to know about the Amiga, but didn't know who to ask – that's what this marvellous collection of six books offers. Thanks to Bruce Smith Books, we've got five sets up for grabs.

Each set is comprised of *Mastering AmigaDOS 2 Volume One*, by Mark Smiddy and Bruce Smith, *Mastering AmigaDOS 2 Volume Two*, by Mark Smiddy, *Mastering Amiga C*, by Paul Overaa, *Mastering Amiga System*, also by Paul Overaa, *Mastering Amiga Printers*, by Robin Burton and *Mastering Amiga Beginners*, by Phil South.

Mastering AmigaDOS 2 Volume One offers a complete tutorial on using the Amiga's powerful operating system. Although aimed at beginners, it offers a wealth of detailed information enabling anyone to achieve the most startling effects. *Volume Two* is a complete reference work, containing every single AmigaDOS command in version 2 and below. The office copy is certainly well-thumbed.

As well as these, you'll gain information on how to achieve proficiency in the C programming language, write code that utilises the operating system to the full, plug your printer in without hassle, and, if you're a complete beginner, how to

start from scratch with confidence.

Have a go at the three questions below and send your answers on a postcard or the back of a sealed envelope to:

Mastering Magic
Amiga Shopper
29 Monmouth Street
Bath BA1 2DL

The closing date is September 7.

THE CHALLENGE

QUESTION 1

Who is the undisputed master of AmigaDOS?

- a) Mark Smiddy
- b) Mickey Mouse
- c) Bob Monkhouse

QUESTION 2

What is the name of the part of the Amiga's operating system dealing with windows, the mouse and so on?

- a) Windows
- b) Instinct
- c) Intuition

QUESTION 3

What was the predecessor to C?

- a) A
- b) B
- c) C-



The *Mastering Amiga* series of books contain valuable information for everyone, from the novice to the Amiga expert

CUMANA CAPER!

The lucky winners of July's competition are: N Culpin of Staybridge, Cheshire; Michael Suttling of Grays, Essex; A Flatman of Crawley, West Sussex; Lee Cobb of London; Paul Bonehill of Nuneaton; W Atkinson of Whitley Bay, Tyne and Wear; Paul Seale of Burgess Hill, West Sussex; Paul Shepherd of Deepcar, Sheffield; Mark Hartshorne of Ilkley, West Yorkshire and EC Gallagher of Camberley, Surrey. You'll each be receiving a COM-201 memory expansion and disk controller from those kind Cumana folk.

IN NEXT MONTH'S ISSUE

- All of your problems solved in our definitive *Amiga Answers* special. There are 32 pages devoted to everything from AmigaDOS to video. If you've got a problem, don't miss next month's issue, 'cause we've got the answers.
- Chaos reigns in *Amiga Shopper* with the start of a brand new series on fractals. Conrad Bessant describes how to make your own fractastic patterns of order and madness.
- Back by popular demand, artificial intelligence guru Phil Gladwin takes a microscope to the mysterious organism known as Computer Life.

Plus regular columns on video, AmigaDOS, desktop publishing and much more
On sale Thursday September 3

**GUARANTEE YOUR COPY OF
AMIGA SHOPPER - RESERVE IT AT
YOUR LOCAL NEWSAGENT**

Please reserve/deliver me a copy of **Amiga Shopper**

Name _____

Address _____

TO THE NEWSAGENT - *Amiga Shopper* goes on sale the first Thursday in each month. It's by Future Publishing and available from your local wholesaler.

POWER

COMPUTING

Commodore A600



The new compact A600 from Commodore

Built-in TV modulator

Workbench & Kickstart 2

Enhanced chip set

1MB of chip RAM

IDE hard disk controller built-in

Credit card size RAM & ROM slot

A600 £399

A600 with 20MB £499

A600 with 40MB £599

A600 with 80MB £699

A600 Memory Cards

New RAM boards for the Commodore A600 £POA

Miscellaneous



10 Maxell disks, optical mouse, Zipstick £45

Power Mouse £15

Optical Mouse £29.95

Replacement optical mouse mat £9.95

A500 Plastic dust cover £9

Maxell multi colour branded disks (Box of ten) £9.95

Floppy disks bulk £POA

Blitz Amiga

Back up disks at lightning speed

Stops all external drives from clicking

Contains anti-virus from being written into the

bootblocker £20

New PC880B

Now with X-Copy Professional!

Power Computing have teamed up with Cachet of Germany to bring you the ultimate in disk backup systems.

The new PC880B disk drive can be used directly with the X-Copy Professional 'Cyclone' software without any extra cables or interfaces.

This gives you the power and reliability of the proven 'Cyclone' backup software with the convenience of the PC880B floppy drive.

So now you can have two backup systems 'Blitz' and 'Cyclone' available at the touch of a button! And the PC880B still has our unique switchable anti-virus mode, preventing all write accesses to the bootblock of your floppy disks!

If you all ready own a PC880B, and the Cyclone copier, a hardware upgrade is available to take your drive up to the latest specification.

New PC880B with Blitz & X-Copy £90.00

New PC880B (Cyclone compatible) £75.00*

Cyclone hardware upgrade for existing PC880B owners £15.00

*This drive is available only to REGISTERED owners of X-Copy Professional. You must provide proof of purchase of X-Copy Professional.

PC880 Disk drive £49.95

PC881 A500 Internal drive £40.00

PC882 A2000 Internal drive £45

A500 Internal anti-click board £9.95

Special upgrade offer!

If you consider your scanner system to be inferior to the Power Scanner, we will happily upgrade your software and interface for only £49.95

(Power Scanner is compatible with most scanning heads)



PC501+ RAM Card

Our RAM board is designed specially for the new A500+ computer and comes with 1MB of RAM on board to expand your memory to 2MB of chip RAM. Plug in and go operation (fits into trapdoor).

Gives you a total of 2MB of chip RAM £49

32 chip RAM card £39.95

8MB for any A500



Plugs into side slot

Fully auto config

Full thru'port

Expand 2MB-8MB

2MB £129 4MB £189

8MB £299 1 x 4Zip £19.95

2MB for any A500

Economy 2MB RAM externally cased

16-Chip (1 x 1 DIP)

No thru'port £99.95

1.5MB RAM Board

Plugs easily into your Amiga

Fully supports 1MB chip RAM

Fully compatible with Fatter Agnus £79

(Kickstart 1.3 and above, not compatible with A500+)

(Your Amiga needs to be opened, this may effect your warranty)

1MB with Thru'port

Expand your A500's memory to a total of 2MB without disposing of your existing 512K upgrade. Works with

1MB of chip RAM, simple internal fitting £49.95

(512K RAM must be 4 chip type, or not exceeding 1cm in length)

(Your Amiga needs to be opened, this may effect your warranty)

A500 RAM Card

512K RAM expansion with battery backed clock and a free disk packed with useful software (4 chip RAM) £29

512K RAM card without clock £24

16 chip RAM card with clock £24

16 chip RAM card without clock £19

(A500+ compatible)

Aries RAM A1500/A2000

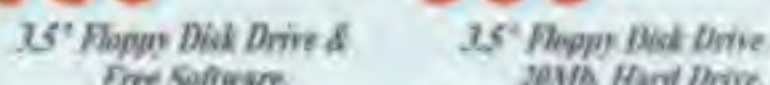
2MB £129 4MB £169 6MB £209 8MB £249

Send your order to Power Computing Ltd, Unit 8 Railton Road, Woburn Road Industrial Estate, Kempston, Bedford MK42 7PN
Ring your credit card order through on **0234 843388 (10 lines)** or Fax on **0234 840234** Technical helpline **0234 841882**

All prices include VAT, delivery and are subject to change. Specifications are subject to change without notice. Next day delivery 44-50 (U.K. mainland only). all trademarks acknowledged

'The new addition'

How's that for your total 'peace of mind'?



**GIVE US A CALL NOW FOR A GREAT
NEW DEAL ON A GREAT NEW AMIGA!**

Available Soon!

Give us a call soon for further news about the equivalent planned CD-ROM drives for Amina 500 and Plus computers.

THE SIMPSONS
CAPTAIN PLANET
LEMMINGS
DELUXE PAINT III

BUT ONLY WHILST LIMITED STOCKS LAST

**BUY A CDTV FROM MERLIN & WE WILL
INCLUDE FREE OF CHARGE EITHER...**
An 88 Key QWERTY Keyboard Worth £49.95!
OR A 3.5" Floppy Disk Drive Worth £59.95!

Only... **£499** 99

ATION ROAD, KEFSTON, DERBYSHIRE. DE7 5HX. 